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THE COTTAGE GARDENER:

A

PRACTICAL GUIDE

IN EVERY DEPARTMENT OF HORTICULTURE.

CONDUCTED

BY GEORGE W. JOHNSON, ESQ.

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THE FRUIT-GARDEN, by Mr. R. ERRINGTON, Gardener to Sir P. Egerton, Bart., Oulton Park.

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TO OUR READERS.

HAVING concluded our second volume, and with it the first year of our periodical existence, we turn, like the Pilgrim, to look back over the path we have traversed. Like him we are grateful for the past and hopeful of the future : grateful because we have won our way most successfully, and because we know we have achieved a measure of good by improving the gardening, and by sprinkling pleasure and comfort round many British homes. We are hopeful because our sphere of usefulness widens as we go, and because the materials and the aid for effecting our purposes increase around us as we advance. The cultivation of the soil is ever improving, to keep pace with the increased wants and numbers of mankind ; and, like the Giant of old, our contributors, each time they touch the soil, seem to gather fresh strength for successful efforts. We can assure our readers that the difficulty with us all is not to find information, but to select that which best suits their present need ; and to do this will obtain, as it has obtained, our untiring exertions. There is a rich harvest to be gathered in during the year before us, and at its close may we again be able to say, with that Pilgrim of other times to whom we have alluded, "We gather strength from the things which are passed."

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WEEKLY CALENDAR.

M D	W D	APRIL 5—11, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
5	Th	Maundy Th. Fieldfare last seen.	Yellow Crown Imperial.	28 a 4	38 a 6	4 45	12	2 44	95
6	F	Good Friday. Turnip Fly appears.	Clustered-Grape Hyacinth.	26	39	5 9	13	2 26	96
7	S	Blackbird lays.	Wood Anemone.	24	41	rises	⊙	2 9	97
8	SUN	EASTER SUN. Ringed Snake seen.	Ground Ivy.	22	42	7 a 43	15	1 52	98
9	M	EASTER MON. Rook hatches.	Red Polyanthus.	19	44	8 47	16	1 35	99
10	Tu	EASTER T. House-Sparrow builds.	Rouen Violet	17	46	9 49	17	1 18	100
11	W	Small White Butterfly appears.	Dandelion.	15	47	10 48	18	1 2	101

MAUNDY THURSDAY.—The name of this day is of doubtful derivation, but it is most probably from the old French *maundian*, a beggar, for it was the Thursday of all Thursdays for him. Throughout Christian Europe it has ever been a custom on this day for even Kings, either personally or by their deputies, to distribute alms, or maundies, to the poor, and even to wash their feet, in commemoration of that humiliation of our Saviour, in which, on the day before his final suffering, he washed the feet of his apostles.

GOOD FRIDAY seems scarcely a designation so appropriate for the anniversary of the sacrifice for the sins of the world as its more ancient title of "Holy Friday." Englishmen have such a propensity to celebrate great events by some kind of eating, that they have even "Hot Cross Buns" for this *fast*. These buns are a remnant of the ecclesiastical custom of distributing *Eulogies*, or consecrated loaves, at this season, not only as alms to the poor, but to those who by sickness were kept away from the Communion Table. In the north of England a more appropriate food is prepared, in the form of a pudding of bitter herbs, among which the *Passion Dock* is also mingled.

EASTER, let us hope, is derived from the Saxon word *Oster*, to rise, rather than from *Eostre*, one of their heathen goddesses, in whose honour certain ceremonies were performed at this season by the Saxon priests. Of the many customs and sayings connected with this greatest of Christian festivals, we can, at present, find space for but this brief one of the ancient weather-seer,—"If the sun shine on Easter day it shines on Whitsunday likewise."

PHENOMENA OF THE SEASON.—When we commenced this department of *THE COTTAGE GARDENER*, we entertained the hope that, brief as our comments necessarily are, they would lead some to compare our notes with the occurrences of the week, who had never thus "asked questions of nature" before, and that, perhaps, either these, or some others who had previously made notes, would favour us with the results of their observations. In this we have not been disappointed, and by all such communications we shall be benefited and obliged. A clergyman, near Downham, in Norfolk, says:—"On last Monday evening (March 12th), at about 6 o'clock, I saw a

bat flitting about as strong and merrily as if it had been the middle of summer; and the next day, in turning over one of my flower beds, I turned out a perfect cockchafer, ready to emerge into the air."

Another clergyman, the Rev. J. Byron, of Killingholme, Lincolnshire, writing to us on the 10th of March, says:—"A word or two respecting those sagacious birds, rooks, may prove not uninteresting to the readers of *THE COTTAGE GARDENER*. There is an ancient colony of them at the Manor House in this parish, and it has long been observed that, except when prevented by a severe frost or extremely stormy weather, they invariably commence building their nests on a fixed day. The 13th of February is regarded as the day on which they pair, and exactly three weeks from that day they begin to build; in leap-years, this falls on March 3th, in other years of course on the 6th. I believe that in many rookeries in this part of the kingdom building commences a little earlier than it does in the one of which I am speaking; probably in some it begins precisely on the day named in the Calendar of *THE COTTAGE GARDENER* as that on which 'rooks build,' viz., March 3rd; but I speak from personal knowledge respecting the rooks here."

"In this rookery, too, as in several others, certain trees are tabooed; and though each successive year some one or two pairs, imbued with revolutionary sentiments (not red, but black republicans), attempt to set up their habitations in them, they were never suffered to complete them, although they kept rebuilding with a perseverance worthy of a better cause. It fared with them as it did with certain *unfeathered bipeds* on the day of Kennington Common; the mass was against them, and the sticks accumulated by the labour of many days were confiscated to the community at large. However, within the last two or three years, agitation and clamour, as elsewhere, have carried their point; the interdict has been withdrawn, and youthful rooks have been hatched and reared in the trees which their forefathers were taught to regard with supreme awe. Thus are old institutions falling into contempt, and time-honoured usages presumptuously broken through; and if Louis Philippe and King IX. are readers of *THE COTTAGE GARDENER*, they may take comfort from the fact that other thrones, dominations, and powers, besides their own, have stooped before the mighty spirit of reform that distinguishes the age we live in."



INSECTS.—One of the most beautiful of our English insects, the Hummingbird Moth (*Macroglossa stellatarum*), is to be found in our gardens during the latter part of this month, and again in June and September, for there are three broods of them annually. It feeds upon the honey in the tubes of flowers, which it collects whilst hovering over them, "inimitably poised itself while on rapidly vibrating wings," and thrusting into their tubes its long flexible tongue. "It is delightful to contemplate the dexterity of this charming insect whilst it sails, all gayety and grace, round the tall sprig of a larkspur or other flower, probing to the very bottom every tube, neglecting none, and trying no one twice." It is not uncommon, and its times of feeding are on sunny days between the hours of 10

and 12 in the morning, and those of 2 and 4 in the afternoon. It measures nearly 2 inches across its expanded fore-wings; they are dusky brown, with several bands, waved, and of different degrees of blackness; there is also a blackish dot near their centre; the hind wings are bright orange, with a darker and redder line round the outer edge; the body is light brown, with black marks on the back; the abdomen, or belly, is hairy, with a tuft at the end, which it can open or shut at pleasure. The caterpillar, of a dark green colour, with a dusky line down the back, with a white and yellow stripe along each side, and yellow legs, is found in March, June, and August. It feeds chiefly on different kinds of *Gallium* (Lady's Bed Straw), and *Rubia* (Dyer's Weed).—*Humphry and Westwood's British Moths.*

So many questions concerning GUANO have reached us that we think it best to embody our answers in one general reply, from some part of which each of our correspondents may derive the information he respectively seeks.

Although guano is a fertilizer new to the English cultivator, it is very far from being only recently employed to enrich the ground. In Peru it was employed to manure the soil when that portion of South America was first discovered; and its very name is evidence of the high estimation in which it was then held by even the ancient Peruvians, for guano, in their language, means the dung, or the manure, as if it was the especial or chief of all fertilizers. This, however, is not left to mere inference, for Garcilaso de la Vega, writing in 1609, says, "In the time of the Incas (early sovereigns of Peru), there was so much vigilance in guarding the sea-fowl, that during the rearing season no person was allowed to visit the islands which they frequented, under pain of death, in order that the birds might not be frightened and driven away from their nests. Each district had a portion of these islands allotted to it." There are many places where guano, or the dung of sea-fowls, may be collected, as at Ichaboe and other islands on the coast of Africa; but none are equal to that from Peru, for the obvious reason that here less rain falls than in any other place where guano is found. The dung, therefore, is at once dried in layers by the heat of the sun, and each layer is so effectual in keeping the ammonia from escaping from the layers beneath it, that when they are dug into they actually emit fumes so pungent as to pain the eyes of the workmen almost insupportably. The large amount of rain falling in our latitudes is the chief reason why there is no accumulation of guano on the islands about our northern coasts, which are so abundantly frequented by sea-fowl.

Chemical analysis shews the cause of guano being so powerful a fertilizer. It abounds more than does any other with ammonia, the most active ingredient of all manures; and, besides this, it is very rich in phosphate of lime, a constituent of all plants; as well as in common salt and other ingredients, all useful as assistants to the growth of plants. The estimation in which guano is held as a fertilizer may be gathered from the most cogent fact, that the number of tons imported gradually increased, from 1733 tons in 1841, to 219,764 tons in 1845. In 1846, 89,220 tons were imported, but the decrease arose from the difficulty of obtaining a supply rather than from any decrease in the demand. Yet considerable discredit has been thrown upon this manure, as well as upon some who have sold it, by its extraordinary adulteration, amounting in several instances to 97 per cent. We, therefore, advise our readers to employ none but the best Peruvian guano, and to buy it either direct of the London Manure Company or from one of their

agents. There are other dealers of equal respectability, but we know that this Company may be depended upon for supplying it genuine.

We now come to consider the different garden crops to which guano has been applied successfully, and the experiments published; but we must advise our readers that we believe there is no crop in their flower, kitchen, or fruit-garden, to which it may not be beneficially applied, if proper care is taken not to give it either in excess or at a time when the plant is not growing healthfully. When guano has been found not of advantage, it has been either because these circumstances have not been attended to or because the manure was adulterated.

The want of common sense in trying experiments with manures would exceed our belief if we had not had many years of intercourse with those "whose talk is of bullocks." For instance, we know one party who tried the efficacy of common salt as a manure for potatoes by using cut sets, putting them into the ground with a dibble, and *filling the holes with the salt!* Not one of the pickled sets, of course, vegetated. Another worthy gentleman mixed his carrot seed with guano before sowing, and then put it in drills, adding a little guano over the seed. Scarcely a plant came up, for the ammonia of the manure destroyed the little tender roots as soon as they burst from the seed. We mention these occurrences as a hint to our readers that discretion and judgment are requisite in experiments with manures, and especially with one so powerful as guano.

A very wholesome warning is offered upon this point by the experiments of Mr. Maund, the editor of that excellent periodical "The Botanic Garden."

"When applied to *strawberries* once a week in a liquid state (four ounces to a gallon), guano made them very vigorous and productive; but sprinkled upon some young seedlings of the same fruit it killed them. Two ounces per yard (five cwt. per acre), were sprinkled over *onions*, and they doubled the untreated in size. *Potatoes* manured with one ounce and a half per yard, were rendered much more luxuriant than others having no guano. *Brussels sprouts* were half destroyed by being planted in immediate contact with nine parts earth and one part guano. *Geraniums* were greatly injured by liquid manure of guano (four ounces per gallon); but 'plants of various sorts in pots, watered only with guano-water, half an ounce to a gallon, have flourished astonishingly; none have failed. 'These are lessons which cannot be mistaken.'—(*Auctarium*, 223.) Mr. Rendle and other persons record, as the result of dearly-purchased experience, that where guano has failed to be beneficial, or has been injurious, it has been applied in quantities too powerful for the plants to bear. In a liquid state, *half an ounce per gallon*, and given to growing plants once a week, it never fails to be productive of vigour. Applied to the *pine-apple* it has been found highly beneficial; and mixed with poor loam or mere sand, it made, in the London Horticultural Society's garden, the *sabias* and *verbenas* grow luxuriantly; but it was too stimulating, and proved deleterious, when applied to them in conjunction with a fertile soil. These facts have been corroborated by experiments

in America and elsewhere. In a pamphlet on "Guano," edited by Messrs. Gibbs, there are many experiments demonstrating its highly beneficial effect when applied to *turnips*, *apple-trees*, and *raspberries*. It is evidently a highly stimulating manure, for the fruit-trees blossomed *twice*; and the other crops were several days forwarder in making their appearance. This arises from its abounding in salts of ammonia."

Some persons have used it with great success as a manure for the *pine-apple*, *melon*, *cucumber*, and various *florists' flowers*. They employed it in the form of a compost, mixing no more than one pint of guano with a barrowful of earth. One gentleman failed in forcing his *cinerarias* into bloom by using it; but he put so much into the soil at their final shifting that he made all their leaves turn brown. But, then, another says, "I have used it for twelve months with the most gratifying results: not on one plant or vegetable, but on every plant or vegetable that is benefitted by the application of manure. For plants in pots it should be used in a liquid state, and my *cinerarias* bear testimony to its merits."

Mr. J. Selkirk, of Aigburth, near Liverpool, on a light sandy soil, employs it for autumn planted crops, at the rate of one pound to every four square yards, mixing every pound with half a pound of wood ashes. *Cabbages* and *cauliflowers* he found especially benefitted, and free from club-root. *Turnips* and *lettuces* were also equally improved; and he applied it with most favourable results as a liquid manure, four pounds to 10 gallons of water, to *camellias* and *pelargoniums*.

Mr. Henry Ford, of Sheaf House, Sheffield, fell into the error of using guano far too freely, for he mixed two pounds of it in only one bushel of earth, and the consequence was that though an *epiphyllum*, *fuchsias*, and *cactuses* potted in it did well, yet his *penstemons* were killed and his *pelargoniums* much injured.

Another party reports that he has used it as a liquid manure to *balsams*, *camellias*, and *crysanthemums*, with the greatest success.

Mr. J. E. Teschemacher correctly observes, that if used at all in the earth for potting *roses*, *pelargoniums*, and other hardy strong-growing plants, not more than a tea-spoonful of guano to a quart of earth should be employed. He found the grass of newly-made *lawns* greatly invigorated by its application to the soil just before laying down the turf. To *peas* he also found guano especially a valuable application. He put it into the drills, but covered it with full two inches of earth to keep the young roots from coming into immediate contact with it. He states that all *cactuses* and other succulent plants are extraordinarily benefitted by liquid guano.

We might multiply these results to a much greater extent, but to do so would be uselessly tedious; and, we will only add, as the results of our experience, that at the rate of four cwt. per acre, or about three pounds to 30 square yards, is the best quantity to

apply to the soil to any crops. The best mode of applying it is to scatter it thinly between the rows or over the roots of growing well-established plants, just to point it in with a fork, and then to leave it to the rains to carry down its soluble parts.

As a liquid manure, half an ounce to a gallon for most plants, and one ounce to the gallon for succulent plants and balsams, are the best proportions. Mix it twenty-four hours before you require it, draw off the clear liquid, and the guano sediment may then have a similar quantity of water again put upon it. These two washings will extract all its most valuable ingredients. This liquid manure should be applied only to healthy plants, and during their season of growing.

The following composition is recommended by Professor Johnstone, as an *artificial guano*. It has been proved, he says, by experiment to approach in value, in a considerable degree, to the genuine kind. It is intended to equal, in effect, one cwt. of guano.

	Value.
	s. d.
78½ lbs. of bone-dust, at 2s. 6d. per bushel*	4 4½
25 " of sulphate of ammonia	3 9
1½ " of pearlsh	0 2½
25 " of common salt	0 6
2½ " of dry sulphate of soda.....	0 2½

132½ lbs. At a cost of 9 0½

All the above substances, except the first, any druggist will supply.

AN active member of a Horticultural Society near Newcastle-upon-Tyne, writes to us as follows:—"It is mainly to the colliers, and others of similar class, that we are indebted for the perfection to which florists' flowers have arrived. Among the many in this county (Northumberland) may be classed the name of Domond, as one of the most successful of the cultivators of these flowers; and though an humble 'pit-man,' he has his name chronicled in the pages of floriculture. Another of the same class, who died lately, is deserving of record in your pages—perhaps as follows:—'Died at Kenton, Northumberland, on the 6th of March, aged 70, Mr. Thomas Buckham, a celebrated florist. The deceased, although a humble miner, and passing the half of his life in the bowels of the earth, could appreciate the beauties of Nature, and was one of the most successful growers of florists' flowers in the county.'"

THE FRUIT-GARDEN.

THE FIG.—Although this is not everybody's fruit, yet we have known amateurs to produce it in high perfection, and to set much store by it; for when thoroughly ripened during a hot period, it is assuredly one of the most luscious of fruits. A great amount

* Half the weight of super-phosphate of lime, or bones dissolved either in sulphuric or muriatic acid, would be much preferable to merely ground bones.

of caution is requisite in planting the fig out of doors; it is not that it requires much of pains or of labour, but the danger consists in the probability of its being over-cultivated.

Soil.—Almost any soil will answer for its culture: provided it does not retain moisture too long. We have known figs answer well in all kinds of free loams, in ordinary garden soils, and in composts containing various amounts of vegetable matter, lime-rubbish, &c. The principal point, especially in our more northern counties, is to provide against a too rapid root action; and this is accomplished either by raising a barrier of brick or stone-work within half a yard of the wall on which the trees are placed, running parallel with the wall, or by mixing a considerable amount of broken bricks or stone in the soil when preparing for their reception.

Habit.—We will now offer a few remarks on their habits and tendencies in our fitful climate, and the discussion of these will prepare the minds of our readers, in some degree, for the severe system of root-culture which we shall afterwards propound.

The fig out of doors in Britain requires all the solar light which our murky skies afford; it, therefore, needs the brightest and warmest aspect in our gardens. It quails before no sunshine, however intense; it will sometimes, nevertheless, cast its fruit through intense drought; and this is a point to which we shall hereafter advert as necessary to be kept in view.

Now, in order to obtain the due amount of solar light, the shoots must be trained very thinly; and here it is manifest that over-cultivation is an evil, for the leaf of the fig under any circumstances is exceedingly gross, and, by introducing too much of vegetable matters or manures into the soil, the fig becomes quite unmanageable, the tree is crowded with waste spray, and the fruit, if any, is watery and insipid.

It ought to be kept in mind that the fig-leaf is very absorbent of atmospheric moisture, and that in damp climates it is probable that it is qualified to obtain nearly one-half its nourishment by means of the foliage alone. We think we are justified in affirming this, from so frequently witnessing such a degree of luxuriance during periods when a very moist atmosphere was prevalent, although unaccompanied by rain, and the trees were growing in a hungry soil. Figs, like other fruit-trees in general, submit to that certain indication of fruitfulness “short-jointed wood;” no plant is a better exemplification of this point. Indeed, an experienced gardener can tell at sight, when the leaves are off the trees, whether they bear well and produce good fruit, by this criterion alone.

Ripening of the wood is as essential a principle with the fig as with other tender fruits, and over-cultivation is totally inimical to this; it renders the whole plant too succulent, and keeps up a late root-action, which prevents the tissue becoming solidified.

We now proceed to such points of culture as will steer clear of the evils above named, and embody, as far as possible, the necessary conditions for successful culture.

Soil.—As before observed, almost any well-drained soil will suit fig-trees; provided that, with its porosity, it also possesses that kind of mechanical texture which, whilst it readily transmits moisture, will also retain sufficient to withstand a hot and dry period in the middle of summer. It is well, however, to lean towards an open, porous character; for if any defect arises through extreme seasons of drought in consequence of the soil being light, a remedy of a very simple character is always at hand in the shape of a good

top-dressing and a bucket or two of water. In preference, therefore, to building preventive walls, and other matters involving extra expense, we say, so compound the soil for them as that they may never grow very gross, neither be liable to suffer from sudden droughts. When the native soil of a garden is too clayey, thorough drainage and the introduction of a liberal amount of sand, lime-rubbish, ashes, &c., with a slight amount of vegetable matter, will in general suffice to make it fit for fig-trees. If the garden soil be too light and porous, some adhesive loam may be added, also old peaty or vegetable matter, or, indeed, anything which may happen to be at hand which is retentive of moisture in its own nature, yet not a “forcing” or rich manure. One thing is requisite: the bed of soil should by no means be deep. We would never allow above half a yard in depth, unless in situations peculiarly favourable to the culture of this fruit, such as occur in our more favoured counties, as Kent, Essex, Sussex, Hants, Dorset, Devon, and Cornwall. These highly favoured counties form an exception to the bulk of Britain. Those who produce figs with so much ease in those counties will, we have no doubt, wonder why we make so much fuss about the matter. We have, however, gardened on the banks of the Thames and in the north, and 30 or 40 years' experience has dearly taught us the vast difference that exists with regard to such peculiar fruit-trees as the fig, and, we may add, the vine.

Propagation.—No plant is easier of propagation than the fig; it will strike with the utmost ease from cuttings of the shoots after the leaves are fallen, provided the plant has rested awhile. The heat of a hotbed is, however, very serviceable, and it is well in ordinary cases to wait until spring, when the early cucumber bed will furnish a capital opportunity, as there is no occasion to plant the young fig-trees out of doors until the middle of May. Suckers, however,—those shoots which arise from the root of old trees—offer the readiest mode of propagating the fig; and these may be cut away in the early part of April, and planted at once. Figs may be also grafted and budded like our other fruits, but this is seldom practised, so little occasion existing for this course.

Varieties.—We now proceed to give a list of a select few, which may be relied on as to hardiness and general utility; these being the points to which the labours of THE COTTAGE GARDENER are in the main directed.

Brown Turkey (Lee's Perpetual).—This is a very hardy fig, and a very great bearer. Fruit of good size and slightly pyramidal, of a brownish colour; pulp very delicious. This is also a great favourite with pot cultivators.

Brunswick (Madonna).—A noble fruit, of a palish green colour, but tinged with red next the sun; pulp very rich and sweet, and of a delicate pink colour. This is about the largest kind in the country of the purple class, and, as it ripens betimes, is excelled by none for the open wall.

Black Ischia.—A middle-sized dark-coloured fruit, of very good flavour, and a very hardy kind; ripening about a fortnight after the Brunswick.

We do not deem it expedient to name any more kinds, as these three may be considered the very best in the kingdom for the open wall. The *Brown Ischia* is esteemed by some, and is a very useful fig, as are most of the Ischias. We, however, prefer the Black variety.

As an inducement to the amateur to plant a fig, we may mention that in Sussex the fig succeeds perfectly as an ordinary standard. We were conversing

with a gentleman from Worthing, the other day, about figs, when he assured us that about that neighbourhood they seldom thought of planting the fig against a wall. He named chalky loams as being well adapted for their culture; and seemed quite astonished at the complaints of bad ripening in the northern counties, even against a wall; such is, nevertheless, the case in indifferent seasons.

Pruning.—The fig should be pruned forthwith, if not already done. It is merely necessary to remove those points which are extending above the wall, and to thin out the shoots nailed down in the preceding summer; preferring all young shoots of a short-jointed character, and removing all succulent ones. At this period the fruit-bearing shoots can be readily distinguished. The main shoots should be laid in at nearly a foot apart; and it is good practice to tie down short-jointed fruitful-looking spurs on the main leaders.

R. ERRINGTON.

THE FLOWER-GARDEN.

LAYING OUT COTTAGE'S FLOWER-GARDENS.—If the plot of ground apportioned to a cottage be small, we would advise our friends not to attempt to cultivate fruit or vegetables on such a small scale. What such a bit of ground will produce is really not worth a consideration. It is a pity to sacrifice it for the sake of, perhaps, a few inferior cabbages, or a small bed of onions or carrots. A shilling or two would purchase twice as much in vegetables of excellent quality. How much more interesting and pleasant would such a little garden look if entirely devoted to the culture of flowers; and, if the cottager could manage to have a hive or two of bees, the flowers would then be profitable, also, as well as charming. Even if he could not raise the means to procure a hive of bees, he might dispose of part of his flowers to repay him for his trouble, and help to buy better roots and seeds from time to time, till his garden was furnished with really good flowers. This would open another source of profit, as he might then divide the good kinds of perennial flower-roots, and dispose of the duplicates, or extra plants, to his less fortunate neighbours. Seeds of annuals and biennials may also be saved, and disposed of in the same way. We state all this, to incline you to cultivate flowers, independently of the moral benefit and love of them, of which we trust you are not insensible. The following is the way in which you ought to lay out your plot of ground, supposing that it is so small as not to be worth while attempting to grow vegetables or fruits. If the plot is of an oblong shape, form an oval bed in the centre, and a circular bed at each end; edge them with box, or thrift, or daisies, or, if your soil is sandy, the common heath makes a pretty edging, and will bear clipping. We have seen, also, the dwarf blue gentian used for this purpose, with beautiful effect. When you have finished edging the beds, then measure off a space from the beds for walks. These should be at such a distance from each other, that the space where they come near each other ought to be the proper width of the walk. Eighteen inches for the walks among the beds will be sufficient for your purpose, as it will not be wise to waste more ground than is absolutely necessary. The remainder of the ground should be edged also, and will form a neat irregular border, in which you may plant the larger kinds of flowers, such as dahlias, and any evergreen or flowering shrub you may obtain, more especially roses. The oval bed will grow roses also. If you can obtain a sufficient

number of this queen of flowers, fill this bed entirely with them—you cannot have too many of them. If you are not able to purchase them in quantity, you may soon obtain a considerable collection by raising them from cuttings, from layers, or by budding on the common brier. These briars you may easily procure from some rough hedge-row or coppice in your neighbourhood. No right-feeling farmer or landlord would prevent you getting them in such situations. Instructions for the several operations of propagating the rose, we have given in various parts of this periodical, and to them we direct your attention. The circular beds might be planted with such florists' flowers as you may possess, such as pansies, pinks, verbenas, tulips, &c. If you have no such things, plant them with the best kinds of perennials. Of course this method of laying out your garden may not exactly suit every case. Some plots may be so small as to allow only of one bed in the centre. In that case, fill the borders with such plants as we mentioned, and the bed with your choice ones, intermixed with roses. Should your garden be so large as to allow you to cultivate vegetables, by all means make the most of it for that purpose, but do not forget to set apart a portion of it for our favourites; and do not be niggardly of the space for them.

All that we have said in praise of the art of cultivating flowers, applies equally to you who have space for the more immediately useful fruits and vegetables. Devote, then, a pretty large space to grow flowers, and lay it out as follows:—In the first place, let the situation of the flower-garden be near to your cottage. The walk leading to the door should be up the centre: it ought to be at least four feet wide. Let the beds for your flowers be on each side of this walk. One side may be a mixed flower-border, containing a row of shrubs, of as great a variety as you can procure. In front of those shrubs you should plant, here and there, standard roses, mixed with hollyhocks; and in front of them, tall-growing perennials, with medium-sized roses; and finally, plant near the edging with low-growing flowers. Let this border be edged with some one or other of the plants mentioned above as proper for that purpose. Having finished that side of your flower-garden, in the next place turn your attention to the other side. You may lay it out in the manner described above for a small plot of flower-beds, namely, with an oval in the centre, and two circles at each end, with borders all round them; and use the beds for choice flowers as there mentioned. Or you might lay it out in beds, four feet wide, with straight narrow walks between each; all the beds to be edged with something. Beds laid out in this form will be very convenient to stock with one kind of flower in each—pinks, stocks, double wall-flowers, double sweet-williams, carnations, pansies, or even tulips, ranunculuses, and anemones. This may seem a large list for a cottage garden, and we do not suppose you will be able to procure them all at once; but your beds may be furnished in a very agreeable and pleasing manner with annuals, until you can fill them with better things. Seeds for them will only cost a few pence: a bed of dwarf rocket, larkspur, another of *Eschscholtzia californica*—the first (a hard name to pronounce) is sounded *escholtzia*, but of the second you will have heard pretty frequently lately. This annual was found in California, by Mr. Douglas; and has been not unaptly called "the Golden Cup flower;" so you may have golden goblets from that country without risking your life in

that sickly land. Another nice hardy annual for a bed is named *Clarkia pulchella* (pretty clarkia); another, *Nemophila usignis* (shewy grove lover); and a bed of scarlet 10-week stocks. This list might be easily extended; and if you have room for more, look at the list given at page 137, and choose such as may suit your purpose. At the end of these beds you may set up your turf pit or frame, which we trust you will, if you have not already, procure as soon as you possibly can. You will find them exceedingly useful. Do not forget to arch over your centre walk, as we directed at page 47. This would be very ornamental, and a delightful shade from the beams of a July sun.

ROUTINE MANAGEMENT.—*Evergreen shrubs* may yet be successfully removed and planted. Use puddle for the roots, stake firmly, and water occasionally, and they will be sure to succeed.

Borders must be finished raking, and all annual flowers sown without delay.

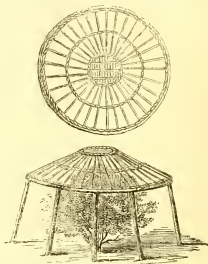
Cuttings may still be put in, and those that are rooted potted off and hardened gradually, so as to bear the open air by the end of April.

Seeds, such as have come up and made some progress, should be potted off also, and after they are established be managed the same as the cuttings.

Lawn.—This pleasing ornament, if well swept, will now require frequent rolling and mowing. If worm-casts appear procure some quick-lime, and put in a common pailful of water a lump of lime about the size of a child's head. The lime should be unslaked. Let it stand till the water is quite clear; then with a rather coarse rose water-pot sprinkle the grass-plot freely till the worms are all killed. The lime-water will more readily reach the worms if you rake off the worm-cast, and so open the holes the worms make to cast up the earth. If one pailful is not enough for your lawn, make the lime-water in a vessel large enough to hold sufficient. Should one application not kill all the worms, apply it a second time, which will generally quite destroy them. Should worms be troublesome in your flower-beds or plants in pots, lime-water will kill them there, as well as on the grass-plot, and will not injure the most delicate plant.

WICKER SHELTERS.—There are some beautiful shrubs that open their magnificent flowers so early in the spring, that their splendour is often defaced, if not utterly destroyed, by late spring frosts. We mean the shrubby Chinese *pæonia moutan* and its varieties, and the Nepaul *rhododendron*, *rhododendron arboreum*, and the numerous garden hybrid varieties. To preserve these magnificent blossoms in all their beauty, by saving them from the cold frosty nights, too often prevalent at this season of the year, is very desirable. A very effectual, cheap, and not unsightly plan, of accomplishing this desirable end, has been adopted at Messrs. Henderson's, of Pine-apple-place. For the benefit of those who may possess some of these desirable plants, and to encourage others who may have been deterred from cultivating them on account of this danger, we shall endeavour to describe it. A sufficient number of stakes, of such a length as that when they are driven into the ground their tops may be at least six inches or a foot above the side branches, are placed one foot from the outermost branches, and about two feet from each other, so that the mats, when they are put upon them, and the wicker work, to be described presently, may not touch any part of the shrub. Upon these stakes, and fastened to them with tarred rope, is then placed a circular frame of very open

wicker or basket work, made of green willows. This is left on constantly, as long as there is any danger of frost. Every night, when there is the least appearance of this enemy, the wicker work is covered with mats, which not only prevents the downward effects of frost, but the upward radiation of heat from the earth. An improvement might be made by having a covering of oiled canvass fitted to the size of each wicker tent, and fastened to the ground with loops and hooked pegs. The accompanying wood-



cut will shew, at one view, what kind of a shelter we have been trying to describe. We can confidently recommend these shelters to our readers. They are so simple, that any labourer, with some ingenuity and a little practice, may make them; and during the summer and winter season they should be put away in a secure dry place, and will last several years. The benefits of these shelters might be extended to the cottager's gooseberries and currants, and many other things. We think our good friend Mr. Errington will agree with us, that a good effectual protection to these fruits is a consummation devoutly to be wished.

FLORISTS' FLOWERS.

Sheltering.—Close attention to the more early blooming kinds, in the article of protection, must be constantly applied, for one night's neglect would cause a complete failure, thus destroying all chance of success, and frustrating all your care during the season of winter. **Watering.**—Great caution is requisite in the application of this element to florists' flowers at this season of the year, especially to those in pots. Plants are now growing and making their greatest effort to produce flowers, and ultimately seeds to reproduce the species; in consequence, now is the time they require more food, and when water is applied in suitable quantities the food of the plant is made soluble, the only state in which the plant can take it up into the system. Rain-water contains the greatest quantity of suitable food for the generality of plants, therefore use this kind of water as much as possible. The grand secret is in the proper application of it, both as to time and quantity. Experience is the best guide in this as in all other things. Observe your plants constantly; if they are growing freely, and the soil appears dry, they require water. When plants require water in this state, give it in sufficient quantity to wet the soil thoroughly: a dribbling system of watering is bad in principle and practice. Having wet the earth well, let your plant digest it before you apply any more. If you

neglect watering at the proper time, the earth in the pots will contract and leave the sides of the pots; and the next time you water, it will pass off down the side—thus not performing the office you design it for. The plant, then, will suffer for want of nourishment; and, if this is allowed to continue, they will eventually perish. To prevent this catastrophe, whenever you observe the soil has left the edge of the pot, stir up the surface with a pointed stick, breaking the lumps of earth, and gently press it into the cavity; then give the required quantity of water, and the evil will be remedied. We beg your particular attention to these particulars about watering. Its proper management is one of the most important points in cultivating any kind of plants, but more especially such as we treat of under this head.

T. APPLEY.

GREENHOUSE AND WINDOW GARDENING.

(Mr. Beaton's manuscript unfortunately had not arrived at the time of our going to press.)

THE KITCHEN-GARDEN.

CELERY.—The present is a good season for sowing this vegetable, either in some warm sheltered corner, upon well-pulverized rich soil, or, what is better, on a little bottom-heat, and putting an old light or hand-glass over it. Plants may, however, be very quickly raised by merely covering them over at night with any slight covering, and, to ensure the production of strong healthy plants, let the water, when water is required, be applied tepid, instead of cold. The grower will be well repaid for this extra trouble, which hastens the growth of the celery, and greatly improves its flavour. If celery of a large size be required, prick the plants early on a gentle bottom-heat, water them with tepid water until they begin to shew signs of vigorous growth, and then add a little liquid-manure, which will speedily make them so strong and luxuriant as to be ready, as soon as the season is sufficiently warm and favourable, to be placed out permanently, without any danger of being checked and stunted in growth, which is one great cause of celery becoming stringy and tough.

RED BEET.—To produce beet of a high colour and strong sugary flavour, the soil is not required to be particularly rich. The present is a good time for sowing, and if the soil is formed into ridges, thirteen inches apart, it is much better for that purpose than sowing on flat laid ground. Dibble the seed at six inches apart on the top of the ridge, and let the plants be thinned out to one foot. This is better for the amateur gardener than affording more room and producing large overgrown roots; but for the cottager, who has either a cow or pig to feed, some large roots are very desirable, providing, when boiled, a most excellent and nutritious food, and one which may be preserved in good condition up to midsummer, and, with care, even to a much later period. Indeed, all who have ground to spare, with a cow or a pig to feed, should manage to sow a good piece of beet, and also crops of *mangold-wurtzel*, both of the long red and the yellow globe varieties, which will give them a succession of excellent keep throughout the year, if well managed. We always boil either beet or mangold-wurtzel together with any other refuse vegetables, adding about 1 lb. of salt to every 30 gallons of food so boiled, and give it to the pigs warm, not hot. They thrive upon it astonishingly,

and are exceedingly fond of it. Indeed, we do not, at the present time, know of anything upon which either cows or swine can so economically be fed.

ROUTINE.—The dry March now passed has done all that could be desired in preparing the soil for summer crops. A finer month for aiding us in pulverizing the soil was never known.

HERB BEDS should be attended to, and put in order without delay, and beds of *chamomiles*, *chives*, and *mint* planted, if not already done, as well as the seeds sown, or beds formed, of *pot marjorum*, *fennel*, *hyssop*, *penny-royal*, *lavender*, *white savory*, *thyme*, &c.

SAVOYS AND BROCOLI.—Full crops of savoys should now be sown; also some of the Early Purple, White Cape, and Grange's brocoli; but the true Walcheren White brocoli, when it can be procured, is the most valuable vegetable, at the present time, to sow in succession at three times within this and the next month to come.

EARLY TURNIPS sow now, in small portions in succession, on well-prepared soil, in a sheltered situation.

SCARLET RUNNEES, too, should be sparingly sown in a sheltered spot, ready for transplanting when the season is farther advanced.

RIDGE CUCUMBERS and **VEGETABLE-MARROW** may now be sown in full crops; care being taken in potting to keep the plants close to the glass, and freely admitting air to establish a hardy and luxuriant growth.

TOMATOES may be taken from the frame and placed out of doors, in a sheltered corner, but protected, at first, with some slight covering, until the season is more advanced.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 23.)

THE beauty of spring scenery is now greatly increased by the busy labours of the woodman. There is scarcely a prettier sight than a newly-cleared copse, with its carpet of moss and primroses, the various piles of faggots, rake-ware, and hoop chips, that stand so thickly around, and the many voices that sound cheerily from the different points where work is going on. It is a sylvan scene, indeed, and there is nothing uncomfortable to one's feelings in it; there is no whip or spur employed, nothing distressing to the dumb creation, so often displeasing even in the interesting acts of husbandry we delight to watch. In wood-craft all is harmless and beautiful, and we can sit on a heap of faggots and meditate in peace. What various and lovely wild flowers spring up cheerily, when the air and sun are admitted! I have seen newly-cut copses like the most glowing gardens; when later on in the season, just before primroses disappear, the blue-bells and wood anemones have mingled their delicate colours also, and formed a mass of flowers. The sweet wood violets, too, grow thickly in many places; and there are in the "greenwood" a multitude of beautiful, though simple, flowers, that charm the lover of nature, and make the morning walk a perpetual treat. The glowing sunsets now can be enjoyed by those whose early habits admit of evening exercise, and nothing can be more soft and golden than the gleams of light that fall upon the woods and larch plantations then, giving them quite the appearance of golden forests. Late hours do not accord with country life—so much of real enjoyment is thrown away.

Our gardens are now beginning to look gay with the rich hues of the tulip, whose buds are gradually unfolding. There is much grace in their forms, in spite of their tall leafless stems; and I admire even the commonest kinds in the cottage garden. The tulip grows wild in the Holy Land, in Syria, and in Greece, and is much esteemed and cultivated in Holland. A bed of tulips is one of the gayest and loveliest objects a garden can possess, and they should always stand in masses, for when placed singly, they lose much of their effect, and are apt to blow about and look disorderly.

The rich scent of the violets now, with the early showers, greets us as we enter our garden. A bunch of these delicious flowers does not afford the degree of scent we might expect; when near they do not please us half so much as at a little distance; placed in a saucer of water, or thrown carelessly on the table, then the fragrance reaches us delightfully, and also from the borders. In mild situations the violet will bloom almost through the winter, but its scent is then scarcely felt, and, like all spring flowers that come too early, it loses half its charm. The double violet is the richest and sweetest variety. To be fine, they should be parted every year, and never suffered to increase into large patches, and the soil should be frequently renewed. Some of our violets are brought from America, and are cultivated on account of their beauty, as they possess no scent; but I confess they have little charm for me. A scentless violet, like a scentless rose, is such a floral disappointment, that I would rather see its place filled with some less lovely flower. The leaves of this plant, among the poor, are frequently applied to bruises; and the flowers, when steeped in vinegar, give it a bright colour, and an agreeable scent. They should abound in every garden, as they thrive well under trees, and will flourish on banks, and in almost all situations. Beds of them carpet the ground under fir-trees, which are not favourable to flowers, and they peep brightly and sweetly from under the dry crisp leaves in woods and copses.

The more common kinds of polyanthus are now appearing. The darker and richer the colour, the handsomer they are, especially if the petals, (that is, the leaves that form the flower,) are smooth edged and even. They are really frightful when disfigured with green leafy cups round the flowers, and should not be permitted to remain in the border; but when not thus encumbered, even the common kinds are pretty in groups, and afford a delicate scent.

The fuchsias are already beginning to shew life in their swelling knots. A slip that I placed in a flower-pot when the plant was cut down in the autumn, and which I kept through the winter in a room, is already pink at every little joint, and means, I hope, to be a flourishing plant before the blooming season. They are so useful, as long-continuing flowers, that they should on this account, as well as for their beauty, be increased as much as possible; and beds of them dotted on extensive lawns, have a very graceful and pleasing effect.

My sweet-scented verberna, too, has put forth two rich little buds just at the surface of the soil, though its slight sprays are still in perfect repose. These plants are so fragrant, that they should be encouraged as much as possible. I have seen them in cottage windows, growing richly, to a very handsome size. They should be protected during the winter, but may be placed safely in the open air after the frosts are over. They should not receive water on the soil, but it ought to be put into the flower-saucer,

and drawn in from below. This I was told by a cottage gardener, whose plants are very fine, when he gave me a young tree. For some time I observed his direction, but growing careless, I watered the soil, and I soon found the leaves turn brown, and curl at the tips. On returning to the former plan of watering, the plant seemed to recover, for, as the old leaves dropped, the young ones shot up healthy and green.

A season of deep spiritual importance is now at hand, and while the cottage gardener waits for "the early and the latter rain," while he looks for the soft enriching April showers, and the bright suns of May, let him not forget—nay, let him *first* of all remember—Him who bestows them all, and observe with a grateful willing heart these times and seasons that commemorate still greater and richer mercies, and a far more stupendous work. Let him remember that on Good Friday the death of the Redeemer purchased the salvation of His people; and let him keep that day holy. It is too often passed by labourers as a common day; they seem not to remember the awful history given of all it witnessed, and spend it in their usual work-day manner. But it is the most solemn day the Christian knows; and if the labouring population loved and honoured Him who has bought them with His blood, they would delight in remembering and hallowing His death and resurrection, and all the griefs and sorrows of that agonizing time. While we strive to improve the worldly comforts of the cottager, and urge him to habits of diligence and industry, we shall do him no good if he labours *only* "for the meat that perisheth," and neglects that which endures "unto everlasting life."

EXTRACTS FROM CORRESPONDENCE.

ROSE-BUDDING.—Instead of the **T** incision, I begin my operation by taking off the bud; and, after extracting the woody part, I place it on the branch which is to receive it, and cut off both extremities, cutting at the same time down to the wood of the stock; I then make the vertical incision, open both sides equally and expeditiously, insert the bud, and finish as you direct. We cottagers are a hard-fisted set; and this plan is more easy certainly, and, I think, more sure of success—all other circumstances being the same, as the bark of the stock and that of the bud join perfectly in two places.

THE GARDEN-REEL.—I have saved the time and trouble of fixing and unfixing the line, by the following contrivance, which answers its purpose, and acts with certainty. I had a piece of iron with a square hole fastened to the centre of the bottom horizontal bar of the reel: the shoulder of the upright shaft was filed to fit this square hole. In replacing the reel on the spindle, a distance equal to the thickness of the piece of iron is left between the top horizontal bar and the loop on the top of the spindle. When string is to be let out, hold the head of the reel down; and when you wish to fix the string, by returning the reel to its upright position, the square hole falls on to the square of the shaft, and fixes it instantly: the cost of the alteration is about fourpence. Now these things are so simple that, although they are unknown here, I can hardly persuade myself they are new.—*A Cottager, Bath.*

INSH LVS.—I beg to suggest, for the readers of your admirable work, my mode of pruning this evergreen, which I should not do, but that I see numerous instances where that indispensable operation is by no means understood; and, the more so, from a

recent conversation with a bigot of the common school, of some twenty years' practice. On asking him how he pruned his ivy, he replied, "I always clip it;" and although a well-trained screen was at hand, upon which I exemplified, he walked doggedly away, with too obvious an intention of pursuing his own plan, than which nothing can be worse. For, if clipped sufficiently close, it must, from the time of its being done, denude the wall or fence of all its beautiful green leaves, until fresh ones grow; and if so clipped in the autumn, leave the whole in an unsightly bare state throughout the winter; whereas, by my plan, no such result is the consequence, and all protruding snags are prevented. In November, I proceed thus:—with my left hand I take firm hold of every summer shoot, however small, or however long and dangling, and boldly drawing it out to its utmost stretch, until it comes to the shoot from which it started; I then, with my pruning-knife in my right hand, and with a cut *from me*, take it off close to the stem from which it started; and by carefully going over the whole with this process, I have the satisfaction of seeing my ivy looking beautifully green throughout the winter, from the summer leaves being undisturbed. A friend's personage (one of your patrons) is covered with Irish Ivy, and all the year round looks green and snug, from being treated this way, without any straggling branches or obtrusive masses protruding from the walls.—Q.

ZINC LABELS.—I have long found these best in every respect, whether for pots or the border. I get a thin sheet of that metal; paint it over with dead white paint; with a strong pair of old scissors cut them out the requisite shape and size, and write the name of the plant boldly, with a black-lead pencil. A single coat of paint, when necessary, makes them as good as new.—Q.

SCRAPS.

THE IRISH SPADE.—C. Beamish, Esq., of Delacour Villa, Cork, writes as follows upon the culture of the soil by spade-labour, and there is much of sound sense in his warnings, as well as in his suggestions. "About seven years ago I commenced the practical operations of a working farmer, filled with exalted notions of the perfection to which the arts and sciences had improved the implements of agriculture, and with easy chair, comfortable fire-side ideas of contempt for the common spade of my country. Attending the National Cattle Shows annually, I purchased without hesitation every thing which appeared to promise any increased facilities for the economy of labour, or the better preparation of the food for the stock. The result of seven years' apprenticeship to the employment of such implements have induced me to change several of my preconceptions in their efficiency. Two of "Richmonds" turnip-cutters, which cost me together £7 4s, are only used this winter for the stall-fed sheep; the turnips for the cattle being merely divided by a small hatchet when very large, as they are thrown to the animals, and only two cases of *choking* have occurred amongst 129 head of cattle of all ages, so fed, and including some of the fattest beef that could be found in the county. An excellent turn-wrist subsoil plough, which cost £5, is altogether unemployed; the work being done much better by the old Irish spade and crow-bar, to a depth of from 18 to 20 inches, as follows, viz.:—"1st.—When the subsoil is not too solid for a spade, a band of four spadesmen, one man with a shovel, and one boy.

"Let four men mark on their spade handles a length of four feet; let them dig along the western fence of a field a strip four feet wide, and let them throw the surface soil in a long heap westwards, or put it into a cart to be drawn at once to the eastern side of the field. Let two of the men then commence digging the subsoil of this strip, with the boy watching them to pick up the stones and throw them far out to the eastwards, to be carted away, for drainage or other purposes. The other two spadesmen then measure off four other feet from the first digging, and throw the surface soil over the strip of subsoil as fast as it is dug, the man with the shovel following them to finish off their work, and turn the grassy side of the lumps of earth downwards.

"2nd.—When the subsoil is too hard for the spade, a band of two spadesmen, three men with crow-bars, and one boy.

"Let the blacksmith make three crow-bars, with good 1½-inch round iron, six feet long, double-pointed and steeled, and with a light ring welded at 18 inches from each of the points. Let the surface soil be removed, as before mentioned, *five feet* wide along the western fence, then let the three men with the crow-bars strike them together into the subsoil to the depth indicated by the ring, and with one united effort root up and loosen the subsoil; the two spadesmen throwing over it the surface soil of the next strip of *five feet* wide, and the boy throwing out the stones, as before mentioned.

"Two men putting down their long-handled, narrow-bladed Irish spades, one beside the other, have far more power of penetrating through the stones into the soil than by any other method of using the broad-bladed, short-handled English implement, which requires the labourer to stoop too much, and is far more difficult to be driven through the increased impediments which its extraordinary breath must encounter in its passage through the earth. In like manner, the great length of the crow-bar admits of the workman standing perfectly erect, and of driving down the point with the utmost force, and with the least possible fatigue; while the long arm of the lever gives great power in forcing the sunk end upwards, through the tenacity of the hitherto unpenetrated mass. When men have to continue the entire day at severe labour, the more erect they can keep their bodies, the more easily will they sustain a continuance of their toil, and on this account the English have adopted a method of bending their scythe handles, which prevents their stooping; and though such a form is a little awkward at first to those who have learned to mow with the old straight handle, after a few days it has been always acknowledged by my workmen to be a means of greatly relieving the labour of the scythe. Lest it may be inferred from these observations that I condemn the use of the English spade altogether in agricultural operations, I beg to add that it is far superior to the Irish implement for marking out drains, and for cutting the surface sods in making the water channels for purposes of irrigation; and therefore no farming establishment should be without one of them (rounded at the corners of the blade,) amongst the draining implements.—Cork Constitution.

TO CORRESPONDENTS.

WATER FOR GOLD FISH (*A Subscriber from the commencement*).—After the recent experiments of Mr. Osborne, upon water kept in lead vessels at Southampton, we have a greater certainty than ever that it very readily becomes impregnated with the oxide of this metal, and is rendered poisonous by being so stored even for a short time. We should not use such water, nor, indeed, rain water at all, for our fish. Spring or river water is the best for such purpose, because containing more air and matters on which the fish feed.

OLIVANDER (H. B.).—You will have found full directions for its culture in numbers 25 and 26. The "sort of bug" sticking under the leaves of your plant is the elder scale (Coccus Neri). Sprinkle them with water heated to 140°. If you require more information let us hear from you again.

GUANO (B. C. B., Hom.).—We thank our editorial to-day we give you the information you require.

LANCASHIRE PIG-FEEDING (John Hawker).—You are not the only person who thinks the statement at page 245, of Vol. 1, a mistake. The statement, however, comes from a correspondent who signs his name, and who we know to be Mr. Saul, of Nuthy Cottage, near Garstang, Lancashire. We wrote to him on the subject, but he has sent us no further information than that similar statements have been published in the *Irish Farmer's Gazette* and the *Irish Farmer's Journal*; adding, that there "the profits are considerably more, and in the present year, I find, they are still greater." We are seeking for information from another correspondent and will inform our readers of the result. In the mean time we shall be glad if any of our Lancashire readers will inform us of any instances of such profitable pig-feeding as are mentioned by Mr. Saul, with some particulars as to the treatment of the pigs. In the south of England we cannot obtain such profits.

RIVERS' TRELLISES (Ibid.).—If we were about to have lights made for a pit, we should not have them made so slight or so rough as for trellises; but for those which require no shifting, or other wear and tear, we should have them made of the substance he recommends, and with the angles halved and not dove-tailed. We saw the trellises and lights fixed at Sawbridgeworth, and though not finished off, yet they answer the only purpose for which they are intended, viz. enabling cottagers and others to ripen peaches, &c. early and without walls.

CIDER-GROUNDS (A Subscriber, Bridgewater).—This refuse of the cider cask is an excellent application to apple and pear trees. Dig a trench about three feet from their stems, and put a foot distance from each stem, and just pointed into the soil, will be sufficient.

SPRINKLING FOR STOPPING ROSES (M. P.).—You will find at p. 280 all that we can suggest upon this subject at present.

NAME OF PLANT (R.).—The plant you enclosed is a male plant of the Perennial Mercurialis (*Mercurialis perennis*), and is common not only in South Wales, but all over England.

SUPER-PHOSPHATE OF LIME (Les. Jun.).—You will find directions for making this at p. 62. Do not mix any lime with it. A tea-cupful sprinkled over the roots of your roses, will be sufficient.

CHLOROPHYLL FOR STOPPING BEES (M. P.).—You will find at p. 280 all that we can suggest upon this subject at present.

MILK GOAT (Ibid.).—It will yield milk before twelve months old; and will continue prolific for six or seven years. Two goats will yield as much milk as a small cow. Those who have lived in India, and on ship-board during the summer, know the value of its milk, as well as of the flesh of its kids.

CRITICISM ON WHITE'S SELBORNE (Rev. H. W.).—Although we are quite sure that no severity of criticism was intended by our correspondent at p. 124, yet we must willingly find room for the following communication, inasmuch as it is the work of one of the most fascinating and most faithful books on Natural History:—"Your correspondent, Rev. C. W. B. (in No. XII.), was somewhat severe, I could not help thinking, upon my relative, Mr. White, of Selborne. He heard some thrushes singing on a certain day in November last, punctually according to the time marked out in your Weekly Calendar—just as your concert bill had announced—but strangely out of all time, as he made it appear, according to Mr. White's rule, that whenever there is any incubation going on there is music. Now surely this rule may hold good without its converse, namely, whenever there is any music going on there is incubation, being true. That the author never meant this converse to be included in his rule, and that, therefore, thrushes singing in November are no contradiction to it, is evident enough from some of the dates of bird-singing given in his *Naturalist's Calendar*:—"Robin, Jan. 1—12; Mistle Thrush, Jan. 2—14; Song Thrush, Jan. 6—22." January is no hatching month, nor even a pairing one. And when he says (in the History of Selborne) that thrushes resume their song in the autumn, as clearly he does not connect that singing with incubation or with pairing. After such an introduction, such a water, it is hard to say that next year's music left off, or where this year's feast of song began. But what your correspondent heard is rather to be considered, I should think, as late autumnal singing, than as the 'early spring song'."—

PASTERE (D. J. S.).—The soil of this, you say, is a stiff clay, shallow, and lying on a retentive brash; becoming as hard as possible when dried by either wind or sun. We fear that you will reap no good from this until it is drained thoroughly. After that, put upon it as much of road-scraps, coal-ashes, gypsum, bone-dust, salt, and dung, annually, as you can afford. Put some of the mixture on now, and then sow on every acre 2 lbs. red clover, 3 lbs. white clover, 2 lbs. perennial ryegrass, 2 lbs. Italian ryegrass, 1 lb. meadow fescue, 3 lbs. cocksfoot, 2 lbs. meadow fescue, 1 lb. hard fescue, 1 lb. rough-stalked meadow-grass, 1 lb. smooth-stalked ditto, 1 lb. sweet-scented vernal grass, and 1 lb. Timothy grass. After sowing, bush-harrow it. Your other questions shall be answered next year.

PEA SUPPORTERS (W. R. W. Smith).—Thanks for the results of your experience: they shall be inserted.

CACTUS (Les. Jun.).—You ask if it is now a good time to commence with these plants, and if there is a yellow one? You may begin to give your cacti some water in small quantities, and put them in a little heat, to bring on the flowers gently. Do not force them too rapidly, or they will flower too soon for your purpose. A little manure-water now and then would assist them greatly. There is not a yellow one of the above-growing kinds, but there is a pale buff one, called *Epiphyllum crinitum*. Several of the mello-cacti have small yellow flowers, and one or two have moderate-sized flow-

ers of that colour, but they last only a day or two, and do not flower freely. Your question about *Amaryllis* is not easy to answer. With your means, namely, a greenhouse and a cucumber-bed, those bulbs will not thrive in a first-rate manner. By no means put them in your cucumber-bed; place them, as you say, in the warmest part of your greenhouse, and they will do pretty well. Some of the earlier kinds will flower in June. Your other questions shall be answered shortly. A catalogue will be sent you by post.

INVENTOR OF THE COTTAGE'S HIVE (A Subscriber).—J. Payne, Esq., Bury St. Edmunds.

MATHEMATICAL DRAWING (A Subscriber, Farnham Gardens).—Hayter's "Introduction to Perspective" will give you, in a popular form, all the instruction you require.

BOX-TREES (Stick-in-the-Mud).—Your newly-purchased box-trees, though drawn up, if not bare round the lower part of their stems, had better not have their tops shortened. We will insert what you say about gutta percha.

GETTERS (C. J.).—It is quite true that the flesh of these is excellent, when boiled, in winter; not that they eat like a mealy potato. We prefer them mashed after being cooked. Sweet peas will do as climbers over your window trellis, but you may add the nasturtium if you only require common plants. If you would have something more beautiful, and less common, yet nearly as hardy, have the *Clematis azeas grandiflora*.

LIQUID MANURE (A Constant Reader).—See our editorial to-day. Your cauliflowers, planted out in a sheltered situation, ought not to require night-coverings.

SPRINKLING OF GOSLINGER'S LEAVES (A Lover of Gardening and Nat. Hist.).—This, we fear, arises from decay either of the roots or the stems. The little red insect you describe is probably an *Acarus*, some species of which are usually found where there is decayed wood, but not the *Acarus telluris* (Red Spider), as you think. We cannot say for certain, as the box was crushed by the post-office stamps, and not an insect was to be found. Thanks for the anecdote of the Centipede, which we will publish, and shall always be glad of such extracts from the book of nature.

SPOUTED POTATOES (Rev. P.).—Pick them over, rub off the sprouts, *required only for table*, and replace them in dry earth, covering them deeper with earth than before.

LIQUID MANURE (Ibid.).—This does not improve the staple of the soil, but only supplies food for the immediate use of the plants. If the wall trees are old and not vigorous, liquid manure might assist them, but it is too invigorating for young trees. Your other question shall be answered next week.

TABACCO FUMIGATION (An Amateur).—You will find full directions at p. 279 of Vol. 1. Your liquid manure is too strong for your roses; two pails of water and one of manure will be better. The leaves, however, are probably affected by an excess of tobacco smoke.

TULIP SOIL (Ibid.).—Mixing quicklime with the soil of your tulip bed, and planting in it within a week, is doubtless the cause of their looking "very bad." There is no remedy now; leave them alone until the autumn, then store them as usual, and give them a better soil next year.

CHINA LABELS (J. Ball).—The medallion pattern you have sent to us is very elegant, and if attached to a shrub or tree by means of a shred of lead passed through the hole in the label, and then twisted round a branch, it would be one of the neatest and most easily inspected of any we know. Why not sell them in the biscuit or unglazed state, so that purchasers might write on them themselves with a lead pencil? For a list of roses see p. 24.

TABACCO-WATER (G. J. B.).—This is applicable for the destruction of the green-fly on roses and geraniums. Other answers in our next.

SUCCESSION OF FLOWERS (J. F.).—If you will refer to page 34, you will find a list that meets your wishes. Your garden being only slightly shaded will help you to prolong the succession of bloom.

EUCALYPTUS CRUELING (A Subscriber).—You say that there are "very few green-flies" but even those few are enough to cause the mischief. If the heat you mention (45°) is the highest day-temperature, then it is certainly too cold; for during some of our late frosty nights the temperature of your house must have been below 32°, and this was enough to do the mischief. Put some of the mixture on now, and then sow on every acre 2 lbs. red clover, 3 lbs. white clover, 2 lbs. perennial ryegrass, 2 lbs. Italian ryegrass, 1 lb. meadow fescue, 3 lbs. cocksfoot, 2 lbs. meadow fescue, 1 lb. hard fescue, 1 lb. rough-stalked meadow-grass, 1 lb. smooth-stalked ditto, 1 lb. sweet-scented vernal grass, and 1 lb. Timothy grass. After sowing, bush-harrow it. Your other questions shall be answered next year.

PERPETUAL ROSES (M. C. P.).—Instructions for pruning these roses have been given under the head "Autumn rose-pruning." See p. 57 of vol. 1. In your case the directions will be similar, at least the first, cutting them clean down to the last year's wood (1847), and the remainder shorten to six or seven eyes. Do not expect many flowers this season, as your roses have to get over the removal and long journey. Two or three of the sorts we know, and they are good; the remainder are unknown in this country.

BULBS OF TUBEROSES (Ibid.).—These should be just covered only with earth.

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WEEKLY CALENDAR.

M	W	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
D	TH	APRIL 12—18, 1849.						
12	Th.	Song-thrush lays.	Thick-leaved Saxifrage.	13 a 4	49 a 6	11 43	19	0 46 102
13	F.	Botanical Soc. meeting. Stock-dove lays.	Green Narcissus.	10	51	morn.	20	0 30 103
14	S.	Redbreast hatches.	Borage.	8	52	0 34	21	0 15 104
15	SUN.	1st or Low S. Willow-Warbler heard.	Green Stitchwort.	6	54	1 19	22	0 a 1 105
16	M.	Easter T. beg. Black-cap heard.	Wild Tulip.	4	56	2 0	23	0 15 106
17	Tu.	Linn. & Hor. S. meet. Frog Tadpoles hatch.	Friar's Cowl Arum.	2	57	2 35	24	0 30 107
18	W.	Ox. & Ca. T. b. Marsh Titmouse note ceases.	Musk Narcissus.	IV.	59	3 6	25	0 43 108

LOW SUNDAY.—The first Sunday after Easter, in every country enlightened by Christianity, has received some particular title, intimating the leading characteristic of a true believer. With us it is called *Low*, in reference to the humbleness of his spirit; in Roman Catholic countries it is more usually termed *White*, regard being had to his inward purity; and in the Greek Church it is named *New Sunday*, in remembrance of his altered nature. Such designations were probably applied to this Sunday because, now especially, if ever, after the absence of Lent, and the celebration of Easter, every one may be supposed to be more disposed "to walk worthy of his vocation."

PHENOMENA OF THE SEASON.—Some few more of the phenomena attendant upon the *germination*, or sprouting, of seed, remain to be noticed. Shortly after exposure to the requisite amount of heat, air, and moisture, the seed absorbs, or sucks in, from the air a considerable amount of oxygen gas, which oxygen combines with the carbon, or pure charcoal, which is a chief component of the seed, and is again given out by the seed in the form of carbonic acid gas. Whilst this chemical process, or combination, is going on, much heat is caused in the seed; and though this is scarcely discernible in single seeds, yet it is very readily perceptible when many seeds are together, as in the sprouting of barley whilst being converted into malt—the heat being then sometimes increased to 100° in a single night. Some seeds require to absorb more oxygen during this process than is needed by other seeds. Thus, wheat and barley only take rather more than one-thousandth part of their weight; but beans and kidney beans require one-hundredth. Some seeds, during this process, acquire a sweetish flavour; and there is little doubt that

the carbon has to be taken from these by the oxygen combining with it, as above mentioned, in order to convert their starchy and gummy constituents into sugar. We shall conclude our consideration of this department of vegetation in our next number.

We have received, from a very intelligent correspondent at Walsall, the following confirmation of the statement we made at p. 155 of vol. i., relative to the wars of the centipedes and the earth-worms:—

"I was very much pleased with the account of the centipede in a recent number of your invaluable publication. I had, a few days since, ample proof of the truth of your statements. Being in the garden, and seeing a worm come to the surface, writhing, apparently in great pain, I was led to examine it, and found a very small centipede clinging to it, apparently intent upon its destruction; and I stood by to witness the *seemingly* unequal contest. The worm must have been at least a hundred-times larger than its foe, and seemed to leave untried no means of escaping: it rolled over and over with astonishing quickness, endeavouring to dislodge the centipede by friction against the earth; it crawled along, tried to bore its way into the soil, threw itself into rapid motion by its contortions, till it was apparently exhausted, but all to no purpose; the centipede was not to be dislodged; the worm, after lying a short time motionless, as if to recover its strength a little, renewed its efforts, but in vain; it gradually grew weaker, and in a few minutes was dead; and the victor immediately began to feast upon its victim. I was once a witness to a similar contest between an animal, which was, I think, the larva of a kind of beetle, and an enormously-large worm, in which the former was victorious."

INSECTS.—In this month, and again in June and August, the *Bristle-moth* (*Ruana crataegata*) is often very abundant about our Whitethorn and



Blackthorn hedges. It is about one inch and a quarter across its fore-wings when expanded, and their colour is a bright brimstone, marked at the base and on the front edge with rusty-coloured blotches; from the second and fourth of these a scolloped band passes across each wing; the hind wings have slight dusky lines upon them. The caterpillars are variable in colour, being sometimes fawn, at others grey, variegated with

	APRIL.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
12 Highest & lowest temp.	Cloudy.	Cloudy.	Frosty.	Showery.	Cloudy.	Fine.	Showery.	Rain.	
	48°—27°	46°—36°	48°—28°	62°—45°	51°—34°	65°—45°	64°—42°	66°—43°	
13	Showery.	Showery.	Snow.	Cloudy.	Showery.	Fine.	Cloudy.	Showery.	
	56°—47°	57°—36°	48°—24°	52°—34°	54°—41°	61°—34°	51°—33°	51°—35°	
14	Showery.	Showery.	Cloudy.	Cloudy.	Showery.	Cloudy.	Showery.	Fine.	
	47°—32°	52°—39°	54°—42°	66°—41°	55°—39°	61°—42°	48°—34°	55°—29°	
15	Showery.	Cloudy.	Fine.	Fine.	Showery.	Cloudy.	Snow.	Cloudy.	
	58°—36°	51°—36°	58°—47°	66°—48°	49°—40°	57°—49°	48°—23°	55°—42°	
16	Fine.	Fine.	Cloudy.	Cloudy.	Fine.	Cloudy.	Fine.	Rain.	
	57°—31°	51°—31°	63°—42°	70°—36°	54°—39°	62°—44°	49°—29°	58°—46°	
17	Cloudy.	Cloudy.	Fine.	Fine.	Fine.	Cloudy.	Fine.	Showery.	
	66°—39°	51°—41°	63°—33°	71°—36°	62°—38°	57°—44°	54°—22°	61°—33°	
18	Fine.	Cloudy.	Fine.	Showery.	Cloudy.	Rain.	Fine.	Rain.	
	61°—41°	47°—40°	67°—35°	61°—30°	58°—37°	53°—43°	52°—34°	57°—35°	

white, whilst some are found brownish, with deeper marks of the same colour; the head and some of the legs of the caterpillar are always orange. It feeds chiefly on the whitethorn and sloe, but we have found it also on the damson and bullace.

Our readers will have discovered before this that whilst we are no respecters of old opinions, merely because they are old, yet that we are equally far from scoffing at ancient lore, merely because it is unilluminated by modern science. When, therefore, we give the following quotation from a letter now before us, our readers will not be surprised if we do not dismiss the subject without further notice. The passage we refer to is this: "In your various numbers I observe the days and dates laid down for routine work without the slightest reference to the state or age of the moon. Are we really to understand that either her waxing or waning has *no* effect upon vegetation? A friend of mine would fain persuade me

that it is useless to be sowing or planting this week; and, when speaking last week of your number for this month, remarked 'it is time enough to get it for ten days to come, this being 'resting time' till the moon changes.'"

Now, in answer to our correspondent's broad question—"Has the moon's waxing or waning *no* effect upon vegetation?"—we as broadly reply that we think it has. This opinion is founded upon the authority not only of all the oldest writers who have treated upon the subject, but upon that of some of the best of all practical observers—our foresters and

* The letter is dated March 17th, and the moon was then on the decrease.

woodsmen. You will find these agreeing that trees are most abounding with sap near the full of the moon, and driest, or most free from sap, during her last quarter. Nor do we see any sound reason opposed to the opinion that the moon's attraction causes this result of their experience, for if the increased attraction of the moon when at the full is sufficient to cause an elevation of the waters, there is no good reason for expecting that that attraction should not influence the rise of fluids in the sap-vessels of plants. And the less inclination have we so to expect, since we know that it is a prevalent opinion among physicians that the same attraction has a powerful influence over the circulation in the human system.* Neither do we know that we should argue against the opinion that, influenced by the same attraction, other circumstances of temperature and moisture being equal, plants grow faster during the increase of the moon than during its decrease. Nor do we think it improbable that Moses referred to the facts that fruits are ripened by the sun, but that vegetable growth is also influenced by the moon, when he speaks of "the precious things brought forth" by the one, and "the precious fruits brought forth" by the other." (Deut. xxxiii. 14).

The same opinion is recorded in other ancient, and in many modern, works upon the culture of plants, though we need only quote Palladius, who directs (*De Re Rustica* ii. 22) that timber for building should be felled during the moon's decrease; and the following extracts from the *Gardener's Chronicle*:—"The Trumpet-tree, Mahoe Bark-tree, and some others, are readily divested of their bark when the moon is full; but, when in the wane, the bark adheres tenaciously to the tree. The Sugar-cane has more sap and less saccharine matter at full moon than at any other time, and the phenomenon is called by the planters 'a spring in the cane.'" Another gentleman, writing from Columbia, says, "In this country, trees and plants during the increase of the moon are full of sap; at the decrease the sap descends. This is so well-established a fact, that timber felled at the increase is useless, rotting immediately. I have myself seen, in the Canoe, the great bamboo, called Guadua, whose joints supply the purest water in the first quarter of the moon, perfectly dry after the full moon."

On testimony such as we have referred to, we ground our belief that the moon has an influence over the rise of the sap in plants, and, consequently, over their periods of growth; but our belief extends no further. We are well aware that numerous passages may be found both in Greek and Roman writers on the cultivation of the soil, recommending sowing and planting to be performed at times coincident with the increase or the decrease of the moon, but, then, we

also know that the same authors think that the application of manures, and even the most common acts of life, should be done with a similar regard to lunar influences. Even our own genuine old English writer, Tusser, says, in his "Five hundred Points of Good Husbandry":—

"Sow Peason and Beans in the wane of the moon;
Who soweth them sooner, he soweth too soon:
That they with the planet may rest and rise,
And flourish with bearing most plentiful wise."

But all this was but a portion of the creed of the superstitious of those days; and the superstitious were the majority, for the majority were ignorant. Werenfels thus ridicules an example of these subjects of the moon: "He will not commit his seed to the earth when the soil, but when the moon, requires it; he will have his hair cut when the moon is in Leo (the Lion), that his locks may stare like this animal's mane; or when in Aries (the Ram), that they may curl like its horns."

THE FRUIT-GARDEN.

DISBUDDING FRUIT-TREES.—We come now to a very pleasurable part of our duty; for, in handling this subject, we are reminded that spring has indeed arrived, and that our lethargic mood, engendered by the tedious winter's gloom, must be shaken off, to give place to the utmost activity of both mind and body; or success cannot be attained in gardening affairs.

We have before stated that disbudding is rendered imperative, by the necessity that exists for admitting and equalising light to trained trees. It claims, however, a much wider scope of action; it can be made to assist in producing a fruitful habit, by a concentration of the sap (or rather the cambium^o) in certain portions of the tree. This bearing of the subject will form matters for discussion in the summer; for the present we must be content to confine our remarks to spring disbudding; and as the peach and nectarine are amongst the first that require the operation, we will make our present remarks to bear chiefly on them; although we may here observe that the principles, in the main, are applicable to most of our trained trees. Whatever modifications become necessary we will introduce in due course. We feel persuaded that when once the philosophy, or rationale, of the practice is thoroughly understood, and its great influence on the vegetable structure appreciated, that amateurs will be induced very frequently to perform this operation with their own hands, instead of trusting to a labourer, who does not stay to inquire into principles; more especially as the operation is necessarily of a progressive character, requiring that a little be done every two or three days; and that little, if commenced in time, only a half hour's labour, or I would rather say pleasure. With regard to the cottage, when once he can understand the bearing of the process (which we shall accordingly simplify as much as possible), he will be enabled to teach his children, and thus imperceptibly create a desire to extend their knowledge of the economy of the vegetable structure.

Disbudding, then, is intended to accomplish the following objects:—

* The very name of lunatic is derived from *luna*, the Latin for the moon, and was applied by our older men of medicine to express their opinion of that planet's influence over mental disorder.

^o The moisture absorbed by the roots, and sent upwards to the leaves through vessels in the wood, is called the *sap*. After this sap has been digested in the leaves, and descends quite altered through vessels in the bark, it is then described as *cambium*.

1st. By removing supernumerary shoots, to throw a much greater amount of light on those portions of the tree which it is desirable to retain for the ensuing season.

2nd. To strengthen for awhile inferior portions of the tree, spurs, &c., which, if this operation be omitted, are but too apt to become overpowered by succulent young spray.

3rd. To control within reasonable limits the root-action, which, from the reciprocity which occurs between the branches and the roots, is apt to become immoderate; tending, of course, to an increased amount in the succeeding year.

4th. As a preventive system of pruning, to supersede the necessity for much knife-work.

DISBUDDING THE PEACH AND NECTARINE.—We must commence with a caution—no tree suffers more from a too hasty disbudding than either the peach or nectarine. Indeed, they are exceedingly sensitive to any injury; and this may arise from the want of solidity in their wood, which is certainly of a very porous character; and may contain, in our cold climate, a much less amount of the cambium, or, as we may call it, "life-blood" of vegetation, than our hardier fruits. A very severe disbudding performed at once, seems to paralyse the whole energies of the trees for awhile, or until an increased amount of foliage is produced through the extension of the growing shoots. Disbudding, therefore, ought in all cases to be performed by instalments. We do not wish to make it appear a tedious process, but we may say, that for those amateurs who are masters of their time and enjoy gardening pursuits, it would be well to perform a little daily. In commencing to disbud a peach-tree—for the nectarine treatment may be merged in this—the first care is, to rub off all those coarse-looking young shoots which stand straight out from the wall, and look as though they were ambitious of becoming individual trees. The sooner these are removed the better; nevertheless, when the trees are weak such will scarcely be produced. We consider that the free production of these is by no means to be deprecated; they merely denote a very healthy root-action, not only at the present time but one of a retrospective character. All they want is judicious management and a little adroitness, to turn the flow of sap into more legitimate courses or channels.

After slipping such off with the finger and thumb, the next point is to see if any young spray is growing behind the old twigs in a position to become distorted or crushed between the branches and the wall. These also may be rubbed off; but, be it understood, such operations are not obliged to be completed in one day: they may be made to extend over a whole fortnight. Another caution here becomes necessary. If any vacant or naked spaces exist on the contiguous parts of the wall, some even of those crooked or gross portions must be retained; for it is better to have a shoot or branch of this character than a barren portion of walling. These things being duly carried out, the next thing is to see if even, good-looking, and well-placed young shoots are not too much crowded. This is sure to be the case if the tree be healthy; and here comes the tug of war: here it is that much discretion and intelligence of a prospective character is requisite. Our practice is to commence at the extremity of every shoot or branch, tracing it from thence downwards. We first remove every side-shoot of young spray which appears likely to enter into competition with the leader; and this will in general cause every

young shoot within four inches of the point to be stripped off. No two shoots of young spray should grow side by side if possible; they should, at the ultimate thinning or disbudding, stand in a regular series successively, from the collar to the extremities, all over the tree. Still, as before observed, this cannot be finally accomplished until after the lapse of many weeks.

One point of great importance we here would impress on the minds of beginners in the art of disbudding; and that is, to be sure and reserve all the *lowest growing* young spray all over the tree. This it is which prevents trees from becoming what gardeners term "naked." Of course, in fan-training, which is the most general mode, (and certainly equal to any other, provided the other points of management are based on sound principles,) all the branches, by radiating from centres, form a fork like the letter V. Well, then, every young spray which is situated the lowest in this letter V, should be carefully preserved, and may, in order to convey a just idea of the ultimate design, be termed a "breeder," signifying that it is in a position to produce, by pruning, young shoots in future seasons to keep up the fabric of the tree; for, manage them however skillfully we will, blanks will at times occur, and these must be kept filled by the produce of these breeders, if we may be pardoned the term, for we merely desire to familiarize things which have hitherto been too much shrouded in mystery.

Such point being established, nothing remains but to continue removing young spray at intervals which appear to be getting crowded; and in all these cases prefer young spray springing from the upper portion of a branch, to that which springs from the under side. We had a system broached some years since, termed "Seymour's system," in which no shoots were permitted but what sprang from the upper portion of the branches. A very good system it was, too, the only fault being that it required too great a nicety; we will, however, some day review all the principal systems.

It is necessary to pursue a systematic course in these operations, and the eye should be directed as a matter of priority, in general, to the grosser parts of the tree, for those parts become speedily confused if not attended to. In the earlier thinnings or disbuddings, it will often happen that shoots present themselves of doubtful character. In such cases there is no occasion to be over nice; the best way is to pinch off the top, they may then be either reserved at the final thinning, or stripped away according as the altered circumstances of the tree may dictate.

"Stopping," or pinching off the points of some of the growing shoots, is another important operation. We will offer advice shortly on that head, as it is quite distinct in character. R. ERRINGTON.

THE FLOWER-GARDEN.

FLOWER-BEDS IN ALLIEMENT GARDENS.—Near to our large towns there are considerable numbers of small gardens, the occupiers of which are generally artisans, who are confined all day in the factory, workshop, or mine. To no class of men are the enjoyments and benefits of a garden more acceptable. After 10 or 12 hours' labour in a close unhealthy space, to stroll to his garden, accompanied by his family, or such of them as can be spared from household duties; and when he arrives there, to spend an hour or two in getting his garden in order, digging vacant ground, planting crops, sowing seeds, water-

ing plants, or putting in cuttings, potting them off, and doing all the things necessary to be attended to; form a light, pleasant, and health-reviving recreation, truly valuable to thousands of our industrious, sober, and steady mechanics, artisans, clerks, and small shopkeepers. For men so circumstanced, the instructions contained in the pages of *THE COTTAGE GARDENER* are especially useful; and we shall this week endeavour to give some hints particularly directed to this class of our readers, and shew them how to lay out that portion of their garden devoted to the culture of flowers.

We will suppose your garden to be a square of a moderate size, fenced all round with a low hedge, not as a fence of protection but merely of division; for, we trust the occupiers of all such garden allotments will act upon that Christian law of "doing by others as they would wish to be done by." Acting upon this principle there is no need of protecting fences. Your garden, then, being, as we suppose, a square, we would advise you first to set out a border four feet wide next to the fence all round the garden, with the exception of the entrance-gate, and a space directly opposite to it for a summer house. Plant an edging of some kind or other, as recommended in our last number; then measure a space for your walk next to this border; two feet wide will do for it, but if your garden is of pretty good size, say an eighth of an acre you may then allow a width of three feet for your walks. Then set out a cross walk through the centre of your garden, and that will in most cases be enough of walks.

You have now two large quarters, or rather halves, to grow your fruit-trees and vegetables in. At the end where your summer-house is, take off another border seven feet wide. This arbour and border should be on the most sunny side of your garden. At the back of this border, taken off the main body of the garden, form a narrow alley or walk, about 15 inches wide. This alley you will find very convenient to wheel the dung on for your vegetable crops. Now, these borders we intend you to plant with flowers. These next the division-fence should be of a mixed character, with a shrub or two here and there, and your tall-growing kinds of flowers. What dahlias you possess may be grown here. The borders near to your seat should be planted with flowers of the best kinds. The somewhat broad border, namely seven feet wide, should be divided across into four feet beds, edged with slate or narrow boards, neither of which harbour snails or other vermin like other things used for this purpose. We intend these beds to receive your collections of hardy florists' flowers, such as pinks, pansies, verbenas, anemones, &c., for lists of which, we refer you to other parts of this work, under the head devoted to them.

You may, on the north side, set up a little rock-work and fernery, if you are so disposed, and can procure easily the necessary materials. Plants you are sure to obtain, either by presents or purchase, or even by collecting the British ferns during rambles on long summer evenings. How to obtain other kinds of flowers, we have from time to time given instruction to our cottage readers, who are more fortunately circumstanced than you, in respect that their garden is close to their dwelling. Turn back, then, to those places for that information.

Remember that universal favourite, the rose: cultivate this abundantly; when roses are in flower, you may garnish your window or mantelpiece with as beautiful and sweet-smelling flowers as those who possess larger gardens and employ numerous gar-

deners. Standard roses you may plant amongst the row of your gooseberry and currant-trees; they would form a kind of back-ground to your flowers, as you might plant a few flowers on that side of the walk next the vegetable ground. We hope, with these few brief hints, and your own taste and ingenuity, you will be able to make your garden ornamental as well as useful.

TRAINING AND PRUNING HARDY CLIMBERS.—Now is a good time to perform this work, if not already done. Should your climbers be thick and overgrown with wood, and against a wall, take them all down carefully from it. Choose healthy clean-grown branches to remain, keeping as many as will cover the wall well when in full foliage. Generally speaking, six inches from shoot to shoot of the stronger kinds will be a right distance. For small twiggy growers, lay them in four inches apart. Contrive to have shoots of young wood of last year's growth equally distributed over every part of the wall. From these shoots you will obtain the flowers. The beautiful *Wistaria sinensis* forms, frequently, its blossoms on short branches commonly called spurs. These you will take care to preserve. Having fixed on those branches you ought to keep, cut all the rest away unmercifully. Clear away those prunings, and then nail up the rest in their places. Train them in neat straight lines either perpendicularly or horizontally, as your wall will allow. *Pyrus Japonica* (The Japan pear) is a beautiful scarlet flowering shrub, shewing its glowing blossoms in March and April. This shrub produces its flower on spurs as well as the young wood. It requires training much like a fruit-tree. There is a white variety, but it is not so strong as the scarlet one, except it be planted against a dark coloured wall. The genus or family of *Clematis* are nearly all handsome climbers, and require at this season severe pruning to keep them within bounds. The sweet smelling *honeysuckle* is an universal favourite, and should be planted in all imaginable corners, against tree-stems, buttresses of walls, and trellis-work. It requires the long shoots shortening a little every spring. It is a thriving plant, and will twist its shoots round small rods. Honeysuckles form beautiful objects when planted amongst other shrubs, pruning them in every winter like a gooseberry bush, or trained to a stake about four feet high, and the long straggling shoots shortened in every spring. *Climbing roses* we have already given directions how to preserve, but there is one species that requires a more particular notice. The *Rosa Banksia* is the kind we allude to. This rose, and its varieties, produce flowers on the small twiggy branches of the previous year's growth; consequently, these, in pruning, should be left on the branches until after the flowering season, when they should be shortened in, and thinned out to produce the small shoots to flower the next spring. Should the tree produce any strong shoots, these ought to be cut away to strengthen the flowering branches. *Ivy* is a truly ornamental climber when properly managed. It thrives pretty well even in the smoky atmosphere of towns. The variety called Irish ivy produces the finest leaves, and is the kind mostly planted against walls or dwellings. This beautiful evergreen is often seen sadly neglected. For want of a little trouble in pruning and nailing it hangs from the wall in straggling masses; and often, during heavy rain and wind, is forced from its support, and is troublesome to fasten up again. This may be avoided by keeping the superabundant shoots closely pruned to the wall. We have seen ivy so neglected that the shoots have grown from the wall several feet, affording

a fine harbour for small birds. Now the way in which we remedied this, was to prune away all the shoots entirely close to the wall, and, if any were loose, to fasten them to it with nails and strong leather shreds. When this was done, the ivy looked desolate and naked enough, as there was not a leaf on it; but what was the consequence? In three months the wall was covered completely with new bright foliage close at home, forming a beautiful coat of bright shining leaves. Now is the very best time to renovate, if we may be allowed the term, our old friend the ivy, and cause him to put on a new coat of handsome "Lincoln green."

Pyracantha, or Evergreen Thorn, is a desirable wall creeper. To prune it, little more is required than to shorten in the last year's shoots, and lay in, whenever you can, young strong shoots, as from the side branches of such the flowers are produced. These are white, and not very showy, but are, as is well known, followed by bunches of bright scarlet berries. It is a very desirable coverer of dead unsightly walls.

FLORIST'S FLOWERS.

AURICULA AND POLYANTHUS.—The nearer we come to the fulfilment of our long-looked-for enjoyment, the more anxiety we feel for fear of being disappointed. Now, to the real lover of flowers, especially of this class, no trouble or care is thought too much to bring his cherished pets to perfection. The cares necessary to these flowers, are to water carefully, and cover up securely. Some of the auriculas have their leaves and flower-stems covered with a delicate white powder. This adds greatly to their beauty. If water is applied with a heavy hand, this ornament is considerably injured. Mind this point, ye tyro's in auricula growing! *water the earth only*, and with a small-spouted garden-pot. Watch for insects, and wage an exterminating war against them. Now is the time to shade your opening flowers from the rays of the sun. Change the aspect of your frames from the south to the east. This will give your plants a long rest from the powerful effects of an April sun. Polyanthuses will bear their leaves wetting freely and frequently, to keep them healthy and free from red spider—the great enemy to this plant. We must give a more full essay on these, our great favourites, next week.

T. APPLEY.

GREENHOUSE AND WINDOW GARDENING.

GREENHOUSE CLIMBERS.—The great secret of growing any climbers, whether hardy or otherwise, is to have good borders made for them in the first instance; those for greenhouse climbers being made not deeper than 20 inches, nor much wider than a yard. The most manageable climbers I ever saw were in a border which extended all round a span-roofed greenhouse, and was only nine inches wide, that being the distance between the walls and the path. That border was two feet deep, but about six inches of that depth was taken up by a drain, and a quantity of small pebbles laid over it; then there was a sod of turf, about two inches thick, with the grass side laid downwards, placed all the way on the top of the pebbles, and made to fit so close, that if you were to throw in a quantity of sand and then water it, not a particle of the sand could be washed down among the drainage. A foot of rough loam, without any mixture, was next added. This rough loam was the top spit from a meadow where the soil was not

very strong, but in good heart. It was carted into a large heap, and turned over three or four times during six or seven months. If it had been strong tenacious soil, it would have been reduced by adding sand, peat, and some vegetable mould to it. The top of the border was finished off with a finer compost (on the old rule-of-thumb practice), say one-third loam, one-third peat, and one-third sand and leaf-mould, in equal quantities. This top-layer was about six inches thick, which made the border a couple of inches above the path, thus leaving a full measure for settling, as all fresh soil put together will sink down more or less.

The climbers for this house were potted about this time of the year, and, as the fresh roots showed through the ball in May, they were planted in the new border without disturbing the balls. This would appear strange in these days, as we now invariably shake off the mould when we are planting out climbers, that we may get at the roots to spread them out evenly. But as the month of May is the best time in the year to plant greenhouse climbers, and as by that time the climbers are in full growth, it would be hazardous to shake off all the mould at planting time, unless there was a good gardener at hand, who would shade them and syringe them two or three times a day, besides keeping the house more close and warm for the first fortnight. To meet all this, the climbers that I refer to were taken young, and, at the spring potting, every particle of the old soil was shaken from their roots, and such of the roots as were anyway coiled were cut back to the first bend of the coil, just as we cut in the roots of geraniums, and the pots they were put into were larger than such young plants would require, if they were intended to remain in the pots. The whole were then put into a close pit, but no heat applied, and a mat thrown over the glass, whenever the sun appeared strong, for the first fortnight. A slight shower was also given over the leaves with a fine rose watering-pot almost every afternoon, and by the beginning of May the young climbers looked remarkably well, could stand the sun very comfortably, and also a portion of air from ten in the morning till three in the afternoon. About the middle of May the strongest of these climbers began to show roots coming outside the new ball, and, as soon as this was noticed, the plant was moved to the greenhouse, but not planted till the following week. This was to accustom it to the temperature before planting out. By the end of May they were all in the new border; they grew away like hops, without flagging a leaf, and, for ten years, I never saw any plants do better.

Now, a man would almost be laughed at to-day if he were to plant a climber or any other plant out of a pot with the ball entire, and yet if one would take the same method and care, as above detailed, it would be just as good, and ten times more sure, and less troublesome, than that of shaking off the soil, and training out the roots according to the present system. It is true, such plants might be shaken out of the old soil, and planted in a border any time in March or April, before they begin to grow, but, then, some of them might get such a check that they would not begin to grow till late in the season, and make but a spindling growth of it after all. In such case, they would be in a poor condition to resist the chills and damps of the following winter. If so, they could not fail of being a prey to insects or disease next season, and, instead of being an ornament to the house, and a source of great pleasure to the owner, they would hardly be fit to be seen. We can

always make allowances for diseased plants in pots or boxes, until means for their recovery can be discovered, but a sickly climber is such an obvious evidence of bad management, that no one can pass it over without remark.

Deep borders with old exhausted soil, or with a wet bottom, will either starve the climbers, or, if they are of a strong constitution, and can send down their roots, they will ramble away, and make large soft growths, and no flowers to speak of. Therefore, it is of the first importance that the borders should be carefully made and laid dry at the bottom, for, unless this is well attended to in the first instance, no amount of either perseverance or skill will get over this difficulty.

But let us now suppose that all this is finished or determined upon, the next question will be, what is a proper selection of climbers for particular situations in the house? I shall, therefore, begin to furnish the most difficult part first, which is the back wall, and shall suppose that a stage or bed occupies the centre of the house, and a pathway all the way round, with a border between it and the sides of the house. This is a common arrangement when the greenhouse, or conservatory, is attached to a dwelling-house, with a glass door between it and the living rooms, and it is always the best arrangement when the situation will allow of it. I had a sensible letter handed over to me lately, from "*A Rector in the West of England*," describing a cool conservatory attached to the west side of his house, with an aspect rather to the north-west. The south side of this conservatory is formed by a wing of the house, and this end wall, therefore, has a north aspect. The side of the house forming the back wall he wishes to cover with evergreen climbers, that will look well in winter, flower in summer, and live if the frost is just excluded; his only heating apparatus being a portable stove. Now, although there is no end to the different arrangements that may be met with in conservatories of this class, it will be more to the purpose if we take a particular instance, and the house in question will answer as well as any, besides furnishing some hints to the owner, who, on the principle of "first come first served," is entitled to this precedence. Against the south end wall of this conservatory, having a north aspect, I propose to plant the finest flowering evergreen plant in England—*Habrothamnus fasciculatus*, "one of the gayest plants of the Mexican Flora," that grand emporium of beautiful vegetation.

This beautiful plant is a recent introduction, and its capabilities are not yet fully known. It was first named and described by a foreign botanist; we have, therefore, no English name for it, but if we pry into the meaning which this foreign man of science meant to convey by the name *Habrothamnus*, we ought to rest satisfied without translating it, for the application is most inappropriate. This name—like ninety-nine out of every hundred of generic names used by naturalists—is compounded of two Greek words, *habros*, delicate, and *thamos*, a shrub; that is, "a delicate shrub." Now, if we acquiesce in this meaning, we must, on the same principle, admit a Suffolk pig to be a delicate animal, and so it is when well cooked. The *Habrothamnus* is no doubt the same in a dry herbarium; but in full growth, in a conservatory border, he is a voracious fellow!

This Mexican beauty is not a climber, but there is no way of showing it off to the best advantage like training it against a wall. It will answer on any aspect all round the compass, is the most easy plant

to manage I know, and will fill a wall ten or twelve feet high in three years, and spread as many feet in width. In that time it will also flower from the surface of the ground to the top of the branches, and on a north aspect the flowers will last two months; for we have it here, at Shrubland Park, on a full south and due north aspect, and by the time the plant on the south wall is going out of bloom, that on the north is coming in to succeed it. Moreover, the plant is so hardy that seven or eight degrees of frost will not injure it, if the wood is ripe. Our plants of it here are against a wall out of doors, but we have the means of keeping the frost from it. Our first plant is now about in full flower, but people at a distance would say I was romancing if I were to say how many thousands of blossoms are and have been on it this season. It will come from cuttings easier than a geranium, and I should think a couple of shillings ought to buy a good plant of it; indeed, the nurserymen do not seem to care much about it, as it will not flower well in pots or boxes; neither will it make much show if treated as a shrub planted in the bed of a conservatory. It must be spread out fan fashion against a wall, and kept thin of shoots.

Another way of treating this most beautiful plant, is to plant it out against a house or wall in May; to be taken up and potted in October, and wintered in a greenhouse, or even in a dry shed, like fuchsias. It would then cast its leaves, or the greater part of them, and very little water would suffice to keep it in good order all the winter, like an oleander; and it might be turned out early in April, and trained against a wall as before. It might thus be easily managed for many years. It will not answer well if planted in a confined place in or out of doors: it could, however, be managed if it has ten feet of head room.

The next evergreen climber I would recommend for the back wall of a greenhouse, where many delicate plants would not thrive, is a plant that will grow with great freedom under disadvantage, and is called *Solanum jasminoides*, or Tree potato, as we call it sometimes, because it is of the same genus as the potato, with innumerable clusters of small white flowers, which look, at a short distance, exactly like those of a white jasmine; hence the second name. This useful climber is almost, if not altogether, hardy; but it does much better with a slight shelter in winter, and as it is very easy to manage, and will live anywhere, it is well suited for the back wall of a greenhouse or conservatory. If planted in a good border, and well supplied with water the first season, it would reach the top of the wall, or, say, 12 to 15 feet, in three years, and if necessary would fill 8 or 10 feet of such a wall right and left, so that this plant would cover 20 feet in length of an ordinary back wall; but of course it need not be indulged so far. As soon as it covers its allotted space, it must be checked by cutting its roots in February each season. We have a full grown plant of it at Shrubland Park against the warm wall already alluded to, and that is the way we manage it. Last month we cut off all the roots that extended beyond three feet from the stem. It is now in full bud, for it never fails to bloom from May to the end of October, and everybody admires it. The leaves are not unlike those of a privet, and always dark green.

It is one of the prettiest flowers I know for making wreaths of for young ladies' hair; if pressed up with a few of its own leaves it looks beautiful against dark hair by candle light. When we have large parties here, I often amuse myself in culling out the best kinds of

flowers for the ladies' maids to dress their young mistresses hair with.

Now, this solanum I would plant against the middle of the back wall, so that it could be trained all over it till more delicate plants on either side of it would come up, and then cut away the branches of the solanum to make room for them. There is a variety of this solanum, or, perhaps, a distinct species, with blue flowers, but I never saw it in bloom; it is, however, well worth inquiring after. Blue flowers will not do to dress hair with for evening parties, neither will purple ones; none, indeed, but the clearest white and best scarlets; but I am now looking out for such as will dress a cool conservatory, and I must not aim at killing two birds with one stone. However, some of these days I may come out with a whole chapter on wreaths for the hair.

The next plant that I shall mention for the back wall is also an evergreen; as all plants against this wall look best if they hold their leaves all the winter; it has beautiful scarlet pea-flower shaped blossoms, like a coral tree: the name of it is *Chianthus puniceus*, or the Glory pea of New Zealand. It is a well known plant, introduced in 1832. The missionaries in New Zealand call it the "parrot-beak plant." The true way to show its beauty is to have it trained against a wall, but it is not a climber. It likes very rich soil, and in three or four years it will reach the height of ten or twelve feet. As it has crimson or scarlet flowers, and the habrothamnus those of an orange scarlet, I would plant these on either side of the white flowering solanum for contrast. The three would soon cover the whole of the back wall of an ordinary house, say 30 feet long, but I would plant intermediate climbers if only for temporary use. The great-flowered jasmine (*Jasminum grandiflora*) would do well that way. It is a very old plant with white flowers, and used formerly to be planted in the stove, but it only requires to be kept from sharp frost. It will flower all the year round, and the blossoms are as sweet as those of our common jasmine. All this winter we had it in bloom against our wall, though the flowers did not open well, but in a greenhouse they would be sure to open free enough. It is a slow growing plant at first, and will not flower much for the first two or three years.

Where there is a convenience of training climbers along the roof, a purple passion-flower ought to be planted against the back wall, and carried up to the top of the wall with a single stem, and then trained along rods or rafters. All these strong growing climbers being thus planted at the back, the front border is reserved for the more delicate sorts, of which I shall write next week. D. BEATON.

THE KITCHEN-GARDEN.

Now that the principal spring and summer crops are sown, and making some progress, we must pay the strictest attention to cleanliness, by keeping them free both from weeds and vermin. The crops must be thinned in good time, and the hoe well and frequently used to keep the soil in an open porous condition, so that the air may be freely admitted.

AUTUMN AND WINTER BROCCOLI.—The present is a good time for sowing some of the best kinds of broccoli, to be ready for table use in autumn and winter. Another sowing of *savoy*, *borecole*, and other esteemed varieties of kale, also *cauliflowers*, *coleworts*, *lettuce*, &c., should be made, and care taken to prick out the young plants of former sowings at a few inches

distance from each other; this being the only way to ensure good, sturdy, fibrous-rooted plants, that will speedily establish themselves when finally moved.

POTATOES.—Such early varieties as are already up in the warm borders and corners of both amateur and cottage gardens, may have their shoots very advantageously thinned out to one or two of the strongest; for this is a practice, we have found from experience, will produce a greater crop of good sizeable tubers than if the shoots are allowed to remain growing in a mass.

MUSHROOM BEDS.—Those who have the means of obtaining a little dung from the cow-shed or stable, or the power of collecting cattle droppings from the highways, may turn it to good account by forming a summer mushroom-bed. Mix the dung with a sufficient portion of loam, or good holding fresh soil, to prevent the manure becoming too much heated, and thus getting dry or caked together, which is often a cause of disappointment to the cultivator. The manure should be well shaken and incorporated with the soil, so that it may heat moderately, and maintain that heat without losing any of its most essential properties by evaporation. The bed, at this season, should be made in the coldest and most shaded situation, but not in any draft or current of air; a cold shed, or cellar, or a north aspect under a wall, is the best situation at the present time. Mushroom-beds, which have been some time in bearing, should be assisted by the application of tepid manure-water, brewed from the droppings of sheep, deer, or cows. When necessary to cover the beds with litter, care must be taken to keep clear of all short dump muck or rubbish, which would soon exhaust the spawn.

CUCUMBERS in full bearing should be well attended to now; keep the new-made shoots stopped, and cut out the weakest branches of the old bearing vines, so that space may be allowed for light and for the free circulation of air, without which they are likely soon to become exhausted, and produce nothing but stunted and deformed cucumbers. A little tepid manure-water given occasionally will be advantageous, and will much assist the growth of the fruit.

MELONS.—Those that are already set and swelling off must now be duly thinned, the shoots stopped, and tepid liquid manure occasionally given. Admit the air early in the morning, and shut up early in the afternoon, keeping the interior atmosphere moist by furnishing the heat at the top.* Rub on occasionally inside, at the back of the pit or frame, a little sulphur mixed with hot lime; but clay will do if lime is not at hand.

The plants of *ridge cucumbers*, *melons*, and *vegetable marrow* should be kept in health and vigour by the admission of air and by light covering. Fermenting materials should be prepared for their hot-beds by occasional turnings, and another sowing now made.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 24.)

THE cottage gardens are beginning now to look gay and pretty. We have passed through that withering season, in some parts of England called the

* It may be necessary to explain that Mr. Barnes is of opinion, both from the course of Nature and from his own practice, that the heat in the interior of frames should be kept up by putting linings of fermenting dung round the frames. He justly infers that this is most desirable, as the natural source of heat, the sun, is above the plants he nourishes, not below them.—ED. C. G.

"blackthorn winter;" and now a few soft April showers will change the face of things, and bring out into full and fragrant beauty the yet unopened leaves and flowers. There is generally during the period just passed, a prevalence of cutting, gloomy weather, and as the blackthorn is in bloom about the same time, the name has probably arisen from this coincidence. It is a wholesome check to forward vegetation: and makes us all, as well as our trees and plants, doubly enjoy the mild and genial weather that succeeds it. The fruit blossoms are decorating the walls, with their delicate colours, giving the kitchen garden its first summer beauty; and now all things will appear rapidly in succession, and the country in general will become bright and glowing. The hyacinth has long been cherished in windows, as almost the first blooming flower; but now we see its green buds rising from the centre of the leaves, promising soon to delight us in the open border. The hyacinth is generally found much too powerful for a sitting-room; but in shops, or offices, or in any place where there is plenty of space and ventilation, they are agreeable as well as beautiful, and may be safely admitted. This flower is a native of the Levant, as well as of Syria; and is found in great beauty on the tracts of land near the River Jordan and the Dead Sea. It is striking and affecting to the mind to think that the sweet flower blooming in our simple gardens, should be also blooming in that interesting land, close to the bitter waters that cover the ruins of Sodom and Gomorrah! Glittering thus, so near the awful scenes of God's wrath and vengeance, do they not remind us of the sweet and gracious promises that *always* follow the declaration of His terrible judgments upon sinners? The hyacinth is also found wild in Russia, of a rich deep yellow, so that we may call it a native of many climates. It should be grown, if possible, in well-drained beds, as it is injured by much water; and sand mixed with the best soil you can procure will benefit them. Groups of these lovely flowers look beautiful in borders, and if the season is tolerably dry they will last some time. The starch hyacinth is a very favourite flower of mine. There is something extremely pleasant and refreshing in its scent; and although it is not very gay in colour, it is graceful in shape, and beautiful in the regular and quill-like formation of the flower. The feathered hyacinth is a pretty variety, which I seldom see, but it should be in every garden also.

The laurels are in full flower, giving life and beauty, and sweetness also, to the shrubbery. Their blossoms are very rich, and form a beautiful contrast to the polished leaves. The laurustinus, our agreeable winter friend, still looks bright and rich, so that our gardens now begin to flourish, and to draw us out continually to enjoy their sights, and scents, and sounds. They are, indeed, vocal, with the perpetual chorus that pours forth from the joyous birds, and the very breeze of spring is musical. The sound of the spade and rake are harmonious, too, in the ear of the garden-lover, and when she first catches the soft sweep of the scythe, and smells the fragrance of the first spring mowing, there are few *garden feelings* more delightful. Until the rains begin to fall, this pleasure can scarcely be enjoyed; but they have arrived, and softening and reviving the thirsty earth.

His garden must ever remind the Christian of those deeply precious things "that belong unto our peace." A garden has thrice been chosen by the Creator of the universe as the scene of mighty transactions: it has witnessed the fall of man, his blood-bought redemption, and the agony of Him "by whose stripes we

are healed;" and, at this particular season, it speaks loudly to our hearts. Let the cottager, as he paces his narrow path bordered with flowers, to enjoy their fragrance and the promise of his future crops, remember that Saviour whose death purchased salvation for His people, and by whose glorious resurrection we know that death and the grave have lost their sting and victory. There is a sacred interest, as well as a profit and a pleasure, in our gardens, for they remind us of much we are too ready to forget, that would sweeten our toil and increase our enjoyment. We have not, it is true, the noble scenery and lofty trees of Palestine, with all their holy recollections, but we have ten thousand beauties, ten thousand blessings round us, proclaiming that the same God is with us, among our simple northern flowers, our wild heathery mountains, and our trackless bogs; that He dwells in the lowly cottage and the smoke-stained cabin, as well as in the queenly palace; blesses the "basket" of the labourer, together with the "store" of his rich employer; and gives us "rain from heaven and fruitful seasons, filling our hearts with food and gladness." Let no one neglect his little plot of ground, however small or comfortless; something may be made to grow in it, by *care and diligence*; and if it will support a row of cabbages, and a few double daisies only, we may find enough in them to raise our hearts to God.

HINTS FROM CORRESPONDENCE.

ORNAMENTED MEADOW.—The Rev. E. Lemans, of Ovington Rectory, near Walton, Norfolk, gives us the following interesting notice:—

"In front of my house there is a meadow (upland) of about three acres; into this I have dibbled many bulbs, most of which thrive luxuriantly; and in the spring make a splendid show. *Narcissus incomparabilis*, *N. pseudo narcissus*, *N. biflorus*, *N. poeticus*, *Tulipa gesneriana*, &c., succeed admirably; so does *Fritillaria meleagris*, in a part of the meadow which is rather damp. *Colchicum variegatum* also grows and blooms very well, but *C. autumnale*, though a British plant, does not succeed. *Narcissus pseudo narcissus*, which is a native of this part of the country, seeds itself, and so I think does *Tulipa gesneriana*, though sparingly. *Erythronium densaleonis* has lived many years, but does not increase so as to form patches."

FUMIGATION.—Reading in THE COTTAGE GARDENER that you know of no substitute for tobacco for the purpose of fumigating conservatories, it may, perhaps, be worth your while to try *Cannabis sativa*, or Hemp plant, which the late Mr. Anderson, of the Chelsea Gardens, told me was quite as effectual in destroying insects on plants as tobacco itself, and had the advantage of being both less injurious to the plants and less disagreeable to smell. The Hemp plant should be gathered and dried in the perfection of its flowering season, and, when required, used in the same way as tobacco. Neither having a garden to grow it in, nor any other means of obtaining it, I have had no opportunity of trying its effects, and cannot therefore speak from experience. Should it be found to answer generally, and especially for fumigating ferns, it will prove a great acquisition; for most, if not all, of the delicate species of the latter are destroyed, or more or less injured, by the poisonous fumes of tobacco.—H. D.

[We think it probable that the fumes of the Hemp plant may destroy insects as well as those of tobacco, for we know that in India a most intoxicating gun, called there *Bhang*, is extracted by the natives from

the Hemp plant. We shall be glad if any one can give us information as to its insect-destroying powers.—Ed. C. G.]

GUTTA PERCHA FOR GRAFTING PURPOSES.—From the answer to my note (p. 280, vol. 1) regarding gutta percha as applicable to grafting, I fear you did not understand me. I have procured a portion of the sheet gutta, and I propose to bind it round the graft as a surgeon puts on a bandage, touching the upper edge with the paste (made of gutta percha) to prevent rain from running down the scion into the wound. This sheet costs here (Liverpool) is per yard, twenty-two inches broad; and, should it succeed, it will be of great advantage, especially to our fair friends.

[Used in the way you propose, we think it may answer, and shall be glad of a detail of how you proceed, and of the result.—Ed. C. G.]

GRAPE GROWING.—The Rev. C. A. A. Lloyd, of Whittington, near Oswestry (310 feet above the sea), says, "I have two of Clement Hoare's vine pillars filled as he directs, and the vines in them grow short-jointed wood, and are quite healthy in every respect. The vines are too young to bear fruit as yet. I grow vines under glass without any fire-heat, and the grapes ripen every year. The vines are now (March 22) in leaf, and have some bunches which will in time produce grapes, while my vines upon a south wall are only beginning to swell. Last night (March 21), the lowest temperature out of doors was 26°. The lowest temperature in my vineery, without any fire-heat, 37°."

MANNINGTON'S PEARMAIN.—A new dessert apple, of first-rate excellence. We applied to Mr. Cameron, nurseryman, of Uckfield, Sussex, who has plants to dispose of, for its history, and received the following notice, by Mr. Mannington:—"The origin of the apple, which was named Mannington's Pearmain, by Dr. Lindley, Mr. Thompson, &c., at the Horticultural Society of London, is this:—It was found in a hedge row, a small scrubby tree, on a spot where a cider mill and press were formerly worked, and is supposed to have been produced by a pip or kernel, from the pulp thrown away after pressing. All who have had a chance of tasting this apple, say it is the best they ever met with. When grown in a good season, it is a most beautiful apple. It also keeps remarkably well. I generally have a dish on the table at our fair, on the 14th of May. It is a general good bearer, but not of strong growth with me, though it is better with Mr. Cameron."—*Midland Florist*.

TO CORRESPONDENTS.

IXIAS, LACHENALIAS, AND TIGRIDIAS (G. J. B.).—These require no liquid manure. The *Jacobaea Ily* and *Gladioli* may also go without it, until you are more accustomed to the proper application; no plant either in a young state or in ill health should receive such stimulants. Thus from a cow-house ought to be diluted with four times its bulk of soft-water for your fuchsias; shake the soil from them, and cut off the roots as far back as they appear dead, cut the tops to within an inch or so of the collar, and replot them in small pots, using half sand and half peat; then put them in a warm place, and if there is any life in them they will soon show it. A row of sweet peas, sown within two feet of the ivy you have planted, would answer as well as anything to hide the jagged quarry till the ivy gets up; if sown now they will make a screen till winter, and ripen a crop to pay for the trouble. Potatoes make the best cleaning-crop for new ground, but it is too late now to plant them for profit; carrots, parsnips, or turnips, are the next best, but any crop in drills, which will allow of the soil being hoed, will do.

PLANTING AND WATERING SHRUBS (D. J. S.).—You ask whether it is too late to plant on a stiff, hard, shallow day, and you also wish to know whether you would do well to water over the leaves of some large shrubs lately removed? We reply,—It is too late by far to plant any shrubs at this time, especially on such ungenecious soils as

stiff clay like yours. It is true that people will go on planting till early in May, but we cannot recommend such proceedings, and will do all in our power to eradicate so glaring an error. We shall keep your case in mind, and furnish a list that will suit you long before next planting time—say the end of September. It is an excellent mode to wet the leaves and branches of newly-planted trees till they are out of danger; the afternoon is the best time for such work, and you may begin now, and damp them over three times a week; and if May is fine and hot, you cannot repeat the process too often; give them also a good watering at the roots once a week with pond water, till the July rains arrive, and recollect dull weather is the best time for such work.

GREENHOUSE CONNECTED WITH PARLOUR (J. R. Price).—You propose to support the floor of your greenhouse by pillars, so as to have it on a level with your parlour on the first-floor, and to enter it from the parlour by means of a French window.—We understand your plan perfectly, and you need have no fear of succeeding in making a very useful greenhouse. There are several on the same plan round London, and one of the prettiest we know—the health house at Woburn Abbey, the noble seat of the Duke of Bedford—is exactly on the same plan as you propose. It will require some heating apparatus, and a small boiler at the back of your parlour fire would answer the purpose, with three-inch pipes; a small door at one end, with a moveable step-ladder, would often be convenient to take up and down pots, plants, water, &c., instead of having always to pass through the parlour window. We should like to hear from you again when you finish your greenhouse.

HOT-AND-COLD-THE WALL OF A CHIMNEY (Ibid).—You could easily make a tank bed at the east end of your house, by passing a circle of two-inch pipe, under a slate bottom, from the boiler at the back of the kitchen fire; and over the slate have sand or ciner ashes to plunge pots in; it will not answer to admit the steam or even the vapour from the boiler into the bed. Beside the contrivance mentioned at p. 263, along with "Fortune's pit."

MURIATIC ACID AS A DEODORIZER (Clericus Rusticus).—This will do better even than sulphuric acid for mixing with your house-sewage. Muriate of ammonia is quite as good a fertilizer as sulphate of ammonia.

ALLOTMENT RULES (An Owner of Allotments).—Thanks for these, which we will insert the first opportunity.

NAMES OF PLANTS (R. Reynoldson).—*Berberis aquifolium* is now called *Mahonia*; Spanish broom is the *Spartium junceum* of botanists; if your Lady's Love is what is usually called Southernwood, it is the *Artemisia abrotanum*.

SHRUBS UNDER TREES (T. H. R., Birmingham).—Shrubs to plant out the lawn, and to live under your trees, should be the *Aucuba*, Variegated Holly, Laurestinus, Holly-leaved Berberry, Scarlet-blossomed Currant, and Guelder Rose. You will find a fuller list and instructions applicable to your garden in vol. i. p. 232.

GREENHOUSE HEATED BY WASHHOUSE BOILER (L. R. Lucas).—There will be no difficulty in your effecting this, as the buildings adjoin; all that will be required is to have a cock both upon the flow and upon the return pipe, inside the steam chamber, and the wall dividing it from the washhouse. These can be shut when the boiler is being used in the summer, and you do not wish to increase the heat of your greenhouse.

RHUBARB (Ibid).—On no account move your rhubarbs, which is doing well, and is only four years old; enrich the soil, and do not cut from it too much, and it will continue in perfection for some years longer. You are quite right in remembering the old saying, "Was-well would be better, so took physic and died."

KENNEL MANURE (T. Howard).—We never knew this used alone, but there is no reason to suppose that the dung of dogs is not valuable as a fertilizer, and might be used for celery, or any other vegetable requiring rich manure.

HOT-BED (E. W. Timmins).—It is quite impossible for us to advise you upon the use to which you should apply this unless we know the description of plants you wish to cultivate.

PEA-BEAT (A Subscriber).—(A Subscriber).—The culture of these is precisely the same as that of the taller growing varieties; they only differ in requiring either shorter or no supporters. By dwarf peas, we understand such as are not more than two feet high, and of these it is easy to keep up a succession of good crops; thus, *Bishop's Early Dwarf* (nine inches high) might be grown as a first crop, and *Prussian Blue* (two feet) in successional sowings for the main crops. The *Queen of the Dwarfs* (nine inches) is also a good pea, but these very short peas are not profitable. The *Prussian Blue* is a good cropper.

FORSYTHIA VIRIDISSIMA (Flora).—This we think is so hardy as not to require even the shelter of your greenhouse, but we will let you know more about it next week. Your stove plants are not within our jurisdiction, nor is your Newfoundland dog, but if he was to should serve him as Blaine, the celebrated dog-doctor, used to treat his hysterical canine patients, viz., shut him up with nothing but a hard crust, some straw, and some water—as soon as they eat the crust, Blaine knew the patients were well. You keep your dog too much fed, too much away from water, and too warm; remember, he is a native of a high northern region.

RUBUS HALEN (E. P. Hecan).—Your flat lilac-coloured beans, streaked with black, are the *Zebra or Striped Kidney Bean* (*Phaseolus vulgaris fasciatus*). Your note about raspberries shall be inserted.

MELON SHOW (R. W.).—We have not a single reason for believing that this will not be a perfectly fair exhibition, and that the best fruit will be shown.

LEAVES (G. J. B.).—We are sorry that the soil of the Vicar's garden is so numerous infested, for the two large grubs are the larvae of a *Noctua*, and appear identical with those of *Agrotis segetum*, which is so destructive to turnips; the small ones were all dead and shrivelled up, but they appear to be the larvae of a two-spotted fly—most likely one of the terrestrial midges, *Leia* or *Platytarsus*. They are foes of the gardener.

SAMARITAN (*J. R. Price*).—The pyramidal evergreen shrub you call by this name is probably the Irish Yew. The price, according to the size, varies from one to two shillings to as many pounds.

VENEUS FLY-TRAP (*Hill*).—A muscivorous in your neighbourhood could procure you this, but have nothing to do with it (for it is very difficult to manage), at least not until you see how you can succeed with plants more easily grown.

BULBS FOR THE COLONIES (*R. D.*).—You mention tulip-trees, ranunculuses, and anemones, but none of these, nor, indeed, any spring or summer growing bulb, can be sent to Australia sooner than after Midsummer, or, say, after they are fully ripe, taken up, and dried. Before that time we shall offer some remarks on preparing such things for long voyages.

YELLOW CROCUS (*Subscriber, Leicestershire*).—These not flowering well is caused by your moving them into your kitchen-garden after they have flowered, and bringing them back into your flower borders as soon as they are an inch above ground in the spring; the only wonder is that they bloom at all, after having their roots disturbed twice at the most important periods of their growth. Bulbs should never be moved until their leaves are dead in autumn, nor after they have begun to produce roots in the spring; you had much better either leave the bulbs in the ground all the winter, or take them up in October, dry them thoroughly, and store them in a dry place until February, and then replant them.

COPINGS FOR WALLS (*Rev. C. A. A. Lloyd*).—The following is what Mr. Clement Hoare states on this subject:—"If the wall be less than four feet in height, and the aspect south, the coping ought not to project at all, as the light and solar heat excluded by it will be a serious drawback to the vegetation. No coping should project more than four feet high, then the coping may project as many inches; and if this width be increased an inch every foot that the wall increases in height, up to 12 feet, the principal advantages arising from the protection which coping affords will be secured, in conjunction with the smaller portion of the wall exposed. No coping should project more than 12 inches, whatever may be the height of the wall, and less than four inches is calculated to do more harm than good, as the drip will fall on the fruit. If the aspect be east or west, the coping must be narrower than for a south wall."

PEAR TREES WITHOUT PEAR-BUDS (*C. T. Bristow*).—These are on a south wall, are large, but not old. If they are strong and healthy, by all means root-prune them; do not prune the shoots away more than is absolutely necessary in order to let in light; nail a good many of the shortest-jointed shoots in full length, and even tie down some all along the branches. The least these vegetation do not cure them, you may fairly pronounce them incurable, and supersede them with peaches, &c. A south wall at *Jexhurst* is too good for pears.

APRIS ON PEACHES (*W. Jexhurst*).—You say that the aphid has actually destroyed some of your trees, and injured all the others, though you have used the most judicious applications, but that a coating of clay puddle has done some good. We feel quite astonished that you have been unable to compete with the green-fly on your peach trees after such efforts; surely you have not used your tobacco-water strong enough; we never knew it fail if rightly applied, and we have applied some scores of doses during the last twenty years; one pound of soap tobacco will kill at least a gallon and a half of liquor, which will destroy any green-fly in existence.

ALPINE STRAWBERRY SEED (*2s. a Constant Subscriber*).—You sowed your seed early in February in a pot, sifting one-fourth of an inch in depth of earth over it, and it has not yet produced seedlings. It is very likely, by your sifting your earth so fine, that, in watering it afterwards, you have all but hermetically sealed the surface of the soil; this is a common error. Take a sharp pointed stick and stir the surface of the soil as deep as the seeds, leaving it rather loose; then lay some moss on the surface, and load it with a stone or brick, taking care that it does not become quite dry. A quarter of an inch is too deep for the Alpine seed; an eighth would be quite sufficient.

FEEDING-TRough FOR BEES.—*An Old Apiarian says*,—"At p. 311 you give a description, with the arrangements, of a bee-feeding-rough. My friend, I believe, the first who ever recommended the discontinuance of feeding below, and his 'Bee-keeper's Manual' (third edition) gives various plans for supplying the food on the top of any kind of hive. Among them is one on a similar principle to the one you describe. Mr. Byrton, but more complete and more easily made. In the same work may also be seen recommendations as to winter condensation of vapour in hives, with plans for its accomplishment; one of which is precisely like that furnished at p. 306, by your correspondent, W. Croce." Taylor's "The Bee-keeper's Manual" is an excellent little work, but there is no apparatus for feeding bees in it so easily made as that described by Mr. Byrton.

FUCHSIA DEFICIENT IN FLOWERS (*A Constant Reader*).—Your fuchsias have exhausted the soil of the particular kind of food they require to cause them to flower. Take them up immediately, remove all the old soil, reduce the number of shoots, and replant in fresh loamy earth, mixed with leaf-mould or very decayed dung. Give abundance of water during the time they are in flower. Now and then a dose of weak manure-water would assist them materially.

FUCHSIA SEEDS.—You save fuchsias now as soon as the berries are ripe, take them off the bushes, bruise them gently, washing away the pulpy matter until it is quite cleared off; then spread the seeds on a piece of paper in the sun to dry. Sow it in March or April, on a gentle hot-bed, with a bottom-heat of 70°. Give no water until the seedlings appear above the soil; then sow a little water, and give air to prevent them damping off. The soil to sow them in should be of a light sandy texture. When they have made the second leaf, transplant them, five in a pot, 54 inches across. Pot them next time, singly, into pots 24 inches across; and then you may either keep them in pots, or plant them in your garden.

GARDENS NEAR LARGE TOWNS (*Magnolia*).—We have great pleasure in complying with your request, as far as is in our power without seeing your plot of garden ground. We confess it is a diffi-

cult task to tell what flowers will grow and "look lively" in a garden situated in Stepney, surrounded, as you say you are, with houses, and, consequently, with dust and smoke. We can only advise you as we did a correspondent similarly situated, whose letter we answered some time ago. "For the open parts of your garden, to be sure of flowers, purchase some biennial flower-roots, and plant them immediately. We mean such things as wall-flowers, Canterbury bells, sweet-williams, clove carnations, French honeysuckles, holly-hocks, &c. These you can buy good strong roots of at 3s. per dozen. For the shady part, plant the larger periwinkles at the back, with the smaller varieties in front. You may try, also, the lily of the valley, and some bulbs, especially the bell-flowered squill (*Scilla campanulata*). Annuals are very doubtful things to attempt to grow, but the following are the most likely—Candy-tuft, red and white; Sweet Alyssum, *Clarkia pulchella*, Yellow Lupins, and Mignonette, with a patch or two of Sweet-peas. Buy a few ten-week Stocks, of different colours. Dahlias and Chrysanthemums, of different colours, will flower in autumn; but give them some rich fresh soil to grow in. Plant dried roots of dahlias now. We shall be glad to give directions, such as you desire, now and then, for gardens such as you describe.

FUCHSIA SPECTABILIS (*Lex. jun.*).—This is a noble species, with leaves twice as large as any other we know. In the open ground it will grow from four to six feet high. The flowers are of the most brilliant carmine scarlet, with a conspicuous, large, white stigma projecting considerably. The anthers are also white, which give a strong contrast to the bright colours of the rest of the flower. Full grown blooms are at least five inches long, without the stalk. It is one of the most magnificent things introduced lately.

WALNUT LEAVES (*F. S. A.*).—These, now eighteen months old, if they have been frequently turned over and thoroughly broken down into leaf-mould, may be used as safely for potting as that from any other source.

BEES SWARMING (*Peter*).—The reason that your bees persisted in swarming was that you did not sufficiently enlarge your hive; putting on a bell-glass neither reduces the temperature of the hive sufficiently, nor gives room enough to prevent a swarm issuing. If you put an additional story under, or upon, the top, in April, you would find the bees would then not throw off a colony.

CAMPANULAS TRAINED IN WINDOWS.—The mode of propagating these by cuttings is fully stated at p. 258. The proper name of the Campanula you inquire about is "The Pyramidal Bell-flower"; it is sometimes of various seed, but the surest and easiest mode of propagating it is stated at the page just mentioned.

PAUNING CABBAGES (*Rev. P. W.*).—You will find directions in "The Flower Garden" this week.

CLEBRING IN CABBAGES (*Rev. J. Clapham*).—The best prevention of the cabbages from rotting is to cut the roots off at the bottom of the seed bed or for production, in succession on the same ground. Dipping the roots of the young plants in a thick puddle of soot and earth mixed, is also a good check to the insect causing the disease. We will enter more fully into the consideration of this subject shortly.

HOVUS SWAGE (*J. L. Liverpool*).—You may continue to apply this to your hardy-flowering shrubs, such as Syringas, Lilacs, and Laburnums, but we certainly do not advise its continued application to your pear-trees. (*J. D. Bradford*).—You may apply your house-sewage to your Cabbages, Cauliflowers, Shallots, Onions, Parsnips, and Salad herbs, in trenches made between their rows, two or three times a week, as soon as they are growing well. Do not apply it to Peas and Beans, unless your ground is very poor, until they are in full blossom. Fruit-trees do not require it, and it is best applied in dull cloudy weather.

GARDEN AT WALWORTH (*A Lawyer's Clerk*).—You say you have done as follows, and you have acted wisely:—"Upon attempting to turn up the ground, I found a surface of about a foot of dense clay; under this, two feet of black earth; below, a strong loam, and then again strong clay. The clay has been stripped off, and about the same quantity of garden soil has been put on its place. Across the centre, at a depth of about six feet, runs a two-foot barrel-drain, communicating with the main sewer. I have had a six-inch shaft brought up to the surface, to put in a drain from the paths. The soil is about 12 inches bounded by a two-foot barrel-drain, and is covered by a close palisade of six feet. In the centre I have had a fish-pond dug (in which, I trust, some gold-fish will live); in the centre, eight feet wide and four feet six inches deep, with a small fountain, supplied from the water-but. The paths have been dug out, and are composed of a layer of broken stones, six inches large stones (sifted from gravel); and six inches of good gravel on top. Beyond this, nothing has been done; and there is not a single plant in the ground yet. I now come to ask you what plants I ought to get, preferring to have a few to grow well, than many sickly and dying ones." The objection to your plan is, that the drainage is not carried down the west side, but have nothing to do with standard apple-trees. In the autumn, get some pears on quince stocks, some plums on sloe stocks, and some cherries on mahaleb stocks. They will keep quite dwarfed if properly managed, and will not overshadow your ground. If you wish for apple trees, get some on douglas stocks. All of them may be obtained from Mr. Rivers, of Sawbridgeworth. For your flower-borders, we have nothing to add to what we have already stated fully at p. 232. Plant raspberries, gooseberries, and currants, round the edges of some of your beds, and train them as espaliers.

WEEKLY CALENDAR.

M	W	D	APRIL 19—25, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
19	Th.		Alphege. Swallows first seen.	Bear's Garlic	IV.	VII.	3 36	26	0 57	109
20	F.		Song-thrush hatches.	Spring Snowflake	56 a 4	2 a 7	4 2	27	1 10	110
21	S.		Sun's dec. 11° 55' N. Nighthale first heard.	Cyprus Narcissus	53	4	4 30	28	1 23	111
22	SUN.	2 SUN. APT. EAST.	Jelly Nostoc on lawns.	Wood Crowfoot	51	6	sets	29	1 35	112
23	M.		St. George. Squirrel builds.	Harebell	49	7	7 a 48	1	1 47	113
24	Tu.		Whinchat first heard. (first heard.	Sloe	47	9	9 6	2	1 58	114
25	W.		St. Mark. Pres. Alice b. 1843. Whitethroat	Early Tulip	45	11	10 21	3	2 9	115

ALPHEGE was a student at Deerhurst Monastery, in Gloucestershire, and after various gradations, between being a hermit at Bath to being Bishop of Winchester, he finally was Archbishop of Canterbury at the time of being murdered by the Danes on this day in the year 1012. Greenwich claims the honour of being the place of his martyrdom.

ST. GEORGE.—It is but too probable that those who first adopted St. George as the patron saint of England knew nothing of his history. Passing by the fable of his slaying the dragon, and all the other nonsense to be found in "The History of the Seven Champions," we find that George of Cappadocia, whilst a heathen, was so guilty of fraud that he was obliged to fly from the country of his guilt. Seeking refuge at Alexandria, and professing conversion to Christianity, he sided with the Arian sect, and eventually became bishop of that city. His avarice prompting him to plunder rather than to convert the pagan people of his diocese, he, at length, was thrown by them into prison, but was dragged thence and murdered by the populace, A.D. 301; thus giving occasion for considering him as a martyr who ought to have died unpitied as a malefactor. In his early struggles to establish the Arian power at Alexandria, he had frequently accompanied his victorious troops, and was on that account selected by the soldiers as their patron. When the English Crusaders reached Palestine, in 1096, they found St. George thus elevated to be a warrior saint; they sought his aid by prayer at the battle of Antioch, and to him was given the credit of that victory. From that time they adopted him as their tutelar saint, and his name as their war-cry. Bringing his legend with them back to England, he was by degrees selected to be the patron of the Order of the Garter, and the guardian of England.

ST. MARK, the Evangelist, is stated by Papias, a contemporary of the Apostles, to have been a disciple of St. Peter, and this is confirmed by the apostle himself calling Mark, "my son." He was a nephew of Barnabas (Col. iv. 10), accompanied him to Cyprus (Acts xv. 37), and afterwards evangelized with Peter in Asia (1 Peter v. 13). According to some of the most trustworthy of Christian historians, Mark founded a church at Alexandria; and died there about A.D. 62.

PHENOMENA OF THE SEASON.—Chief among these are "The April showers," proverbial throughout England as associated "with summer flowers," and this year they have been piteously yet gentle, refreshing yet mild, fully justifying as in expecting bountiful crops, if there is any truth in the country adage.

"In April a dove's food

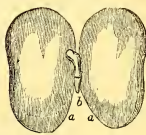
Is worth a king's good."

These gentle rains are especially favourable to the germination of seeds just committed to the soil, and we will conclude our notes on this department of vegetation by a description of the structure of our garden seeds, taking the bean as an illustration.

This sketch shows the bean after its skin has been stripped off, and the cotyledons, *a*, separated. These cotyledons contain the nutritive matters required for the support of the young plant, of which *b* represents the germ, until it is enabled to draw nourishment from the soil and air by its roots and leaves. The upper part of the germ becomes the plumula, or young stem; and the lower part of the germ becomes the radicle, or young root.

The annexed sketch represents a young plant; in which *a* is the plumula, *b* the radicle, and *c* the cotyledons, which have risen above the ground, enlarged and become what are termed the seed leaves.—*Carpenter's Veg. Phys. and Botany.*

Among the phenomena of the season one of the most interesting is the arrival of the swallow. The earliest day of its first appearance, noticed by Mr. Jenyns during twenty years, was on the 9th of April, and the latest on the 26th of this month. We shall state, some day, why we attach much importance to the record of these natural events; but shall at present say no more than that you may "sow kidney beans as soon as you have seen two swallows together." Mr. Payne, writing to us on the 7th instant, says, "The appearance of drone bees so early will astonish many persons; it is what I have never even heard or read of, but it is true, although by many it will be questioned. I saw them yesterday (Friday, April 6th,) in considerable numbers; I have also seen the small white butterfly, many days earlier than I ever saw it before."



INSECTS.—The Gray-streak Moth, or Rocket Tinea (*Cerosoma porrectella* of some entomologists, but the *Tinea porrectella*, and *T. hesperidella*, and the *Ypsolophus vittatus* of others,) is shown of its natural size and magnified in the annexed wood-engraving. The fore wings are very pale buff, with large curved marks on the inner margin, white, edged with ashy-black, and black patches at the end next the

body; hind wings pale brown. This moth appears in June and August, but its caterpillars may be now found feeding on the buds of the White Rocket. The caterpillars are small, green, with yellowish heads, and minutely dotted with black. These caterpillars, by means of a fine web, draw the young leaves of the shoots of the Rocket together, and feed upon the shelter they thus form.

	APRIL.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
19 Highest & lowest temp.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Cloudy.	Fine.	Cloudy.
20	58°—32°	63°—26°	63°—41°	66°—42°	66°—36°	53°—34°	57°—27°	61°—36°	
21	Cloudy.	Fine.	Fine.	Fine.	Fine.	Showery.	Fine.	Rain.	
22	56°—30°	64°—33°	70°—26°	69°—45°	68°—36°	54°—27°	60°—30°	59°—46°	
23	53°—40°	Fine.	Fine.	Fine.	Fine.	Cloudy.	Cloudy.	Showery.	
24	53°—40°	60°—43°	65°—45°	70°—38°	66°—38°	57°—30°	61°—36°	54°—46°	
25	Cloudy.	Fine.	Showery.	Fine.	Fine.	Cloudy.	Cloudy.	Showery.	
26	53°—41°	66°—36°	59°—26°	70°—39°	63°—31°	57°—37°	64°—30°	54°—43°	
27	Rain.	Fine.	Fine.	Fine.	Fine.	Cloudy.	Fine.	Showery.	
28	48°—28°	75°—37°	60°—28°	71°—30°	72°—34°	53°—42°	59°—36°	60°—44°	
29	Showery.	Stormy.	Fine.	Fine.	Fine.	Showery.	Fine.	Showery.	
30	56°—39°	72°—37°	66°—29°	71°—31°	71°—34°	57°—34°	58°—28°	56°—36°	
1	Fine.	Fine.	Showery.	Fine.	Fine.	Rain.	Fine.	Cloudy.	
2	59°—53°	73°—42°	56°—34°	73°—33°	67°—52°	60°—42°	62°—36°	50°—29°	

GARDENERS are proverbially a long-lived race; and that they should be so might have been anticipated, for their employment in the open air, with the exercise and early hours it requires them to adopt, are conducive to longevity. Knight lived to be 80 years old, Martyn to be 90, Abercrombie, Miller, and Switzer, 80, Spechley 86, and Dickson 84. But the exposure to the open air, an exposure not to be shrunk from during seasons the most inclement, whilst it is conducive to length of days, brings with it, also, diseases which render the close of those days decrepid, painful, and incapable of useful effort. Among other acute diseases to which gardeners are particularly liable is rheumatism, the torturer and the disabler; and it is so prevalent among them, that it might not be inaptly called "the gardener's scourge." It is to help those gardeners, disabled by such diseases and by old age, when even "the grasshopper shall be a burden," and "the dust, ere long, will return to the earth as it was," that we appeal to our readers this day.

There is in London a society entitled "The Benevolent Institution for the relief of aged and indigent Gardeners and their Widows,"—such a society as all Great Britain may be appropriately asked to aid; for no one exists whose sehshes have not been gratified by the beauty, the fragrance, or the flavour of some product of the skill of those whose old age that society helps to rescue from penury and sorrow.

The society is ably and economically conducted, and thirty-four poor gardeners, or their widows, are now receiving annuities from its funds, amounting yearly, as a whole, to £500; "but the increasing number of applicants renders an appeal to the public necessary," and when our readers know that the smallest subscriptions will be acceptable, and that no one can be a candidate for assistance until sixty years of age, we think that many of them will contribute their mites out of gratitude to those who have laboured to promote an art from which they have derived so much pleasure, and certain as they may be that their benevolence will not be misapplied.

The subscriber of a guinea annually is entitled to vote, either personally or by proxy, at the election of pensioners when vacancies occur; but any smaller sums will be gladly received, and will be promptly acknowledged, by the secretary, Mr. E. R. Cutler, 97, Farringdon-street, who will readily attend to any inquiries.

IN answer to one signing himself "One from the Lakes," we answer that THE MISTLETOE may be propagated easily by its seeds; and we answer him thus prominently because we think it a subject of general interest, and that some of the information we have to give is known to very few.

We fear that the season for sowing the Mistletoe is

passed for this year, the best months for so doing being in February and March. If, however, any of the berries of this parasitical plant are to be found, the experiment may yet be tried. The mode of sowing is very simple. Make two cuts, in the shape of the letter V, on the *under-side* of the branch of an apple-tree, where it is wished to establish the Mistletoe. Make the cuts quite down to the wood of the branch; raise the tongue of bark made by the cuts, but not so as to break it, and put underneath one or two seeds freshly squeezed from the Mistletoe berry. Let the tongue back into its place, and the process is completed.

If the seed is good, it will soon send forth its two-leaved progeny, not unlike cucumber plants when they first appear above the soil. They remain attached to the branch, and do not appear at all to injure the tree.

We were instructed in this mode of Mistletoe-culture by Mr. Weaver, the every-way praiseworthy gardener of the Warden of Winchester College; and we will add some of his observations from notes we made at the time, because they are extracts from that volume whence, if read aright, no untruths can be obtained—the book of Nature. He shewed us plants of the Mistletoe of various ages which he had thus raised, and added that he had selected February and March as the sowing time, because he observed that the Mistle-thrush then began to feed upon the berries of the Mistletoe, from which it derives its specific name, and thus was the means of, at that season, depositing the seeds on the branches where they vegetated. Mr. Weaver opened the bark underneath the branch to receive his Mistletoe seed, not only because it was there preserved from an accumulation of rain water, and was shaded from the sun, but because he observed that the seeds deposited by the thrush floated in the excrement of the bird, and passed with it to beneath the branch.

The Mistletoe is found in the greatest abundance in the cider orchards of the West of England, and there alone, we believe, is it turned to any useful purpose. Mr. Weaver says that it is gathered early in the spring, and the leaves and young shoots, being boiled, are given to young lambs and pigs. It abounds with mucilage, or gummy matter, and is found to be very fattening.

The Mistletoe may also be propagated by grafts, and it is said that it will succeed upon any tree. It is certainly found upon the pine in Germany, but we question very much whether it would live upon the walnut. It will grow, yet with difficulty, upon the oak, but it readily takes upon the apple, pear, poplar, and willow. Our coadjutor, Mr. Beaton, writing in 1837, says (*Gard. Mag.* iii. 207, N. S.), the first weeks of May are best for grafting the Mistletoe, and that it should never be inserted less than five nor more than ten feet from the ground. Make an incision in the bark, and insert into it a thin slice of Mistletoe, having a bud and one leaf at the end. Grafts larger than half an inch in diameter require a notch to be cut out of the branch, the incision to receive the scion

being made below this notch, and a shoulder left on the scion to rest on the notch, as in crown-grafting. Budding the Mistletoe may also be practised in the middle of May. Mr. Beaton says it is only a modification of grafting, a heel of wood being retained below the bud for insertion.

Owing to a packet of letters being mis-sent, we regret that several correspondents must remain unanswered until next week, who ought to have received replies in the present number.

THE FRUIT-GARDEN.

THE DEPREDACTIONS OF BIRDS.—We cannot offer more seasonable advice than to keep a watchful eye on the blossom-buds of fruit-trees in general, more especially the cherry-trees; for frequently we have had our trees stripped by a host of toutits and bulfinches. Many plans have been proposed and practised; some based on the principle of destroying the birds; some by scaring them away; and others by decoying them in another direction. As to their destruction, the gun is sometimes put in requisition, but this is a dangerous weapon amongst fruit-trees, and must be used with great caution; for the wounds occasioned by gun-shot on the stems of fruit-trees are very prejudicial, and not unfrequently engender cancer. The infliction of such wounds can scarcely be avoided, for these birds, when scared by the noise of a footstep, generally settle on some fruit-tree or bush.

Poison has been frequently used for their destruction; this, too, is a course that few like to resort to in a garden where the favourite dogs or cats, or even the fowls, to say nothing of our own species, frequently resort. The tops of garden walls seem to present the best battle-field for destroying them; for to these they might be decoyed by daily placing there a few radish or any other seeds, of which they are fond, in a germinating state, and shooting or entrapping them in this situation. Here, too, the direction to shoot cannot possibly lead to accident; for we have known a case or two, in our day, in which persons have been shot in the face, or otherwise, when suddenly turning the corner of a hedge or wall.

Speaking of traps, the common iron, or, as it is usually called, "steel trap," is a capital engine of destruction, especially to blackbirds and thrushes. These may be purchased for about nine-pence each; and a dozen set on the garden walls, if well attended to for one summer, would go far towards the extermination of these fruit-devourers. We must, however, confess that it is far from being the most humane mode of carrying out the object in view, and that we have never set an iron trap for birds without feeling a secret pain. What, then, is to be done? If they were not kept under by various means, there is little doubt that they would soon become so abundant as to consume nearly all the food in the kingdom. We grow a considerable amount of strawberries, and we generally gather at least two bushels for preserving purposes; but this is nothing to what the birds destroy. There is little doubt that some forty per cent. of all our strawberries and bush fruit is consumed annually by the birds, in spite of all our precautions. We, however, live (in Cheshire) on the edge of a forest where, in the fir plantations, the birds breed by thousands; and from which plantations they emerge in flocks as Midsummer approaches.

The best part of the destroying plan is, nevertheless, to keep a vigilant look out after their nests; and to offer premiums for their eggs, after the manner of wasps. Prevention is, indeed, much "better than cure;" and this mode we would fain impress on the minds of our readers, not as merely the business of one season, but to be pursued annually, as the seasons come round. Now, this maxim applies to the smaller birds, as well as the blackbird and thrush. It is all very well to talk of the mellifluous notes of the latter birds; no one enjoys them more than we do; nevertheless, a few luscious cherries and strawberries, during a burning July sun, are equally refreshing to the palate as the liquid notes of the blackbird, or the measured and varied notes of the thrush.

SCARING BIRDS.—Here, again, many plans offer, and each, perhaps, possessing its share of merit; the adopting either the one or the other, or a combination, must be entirely ruled by circumstances. In this part of the country, the good folks who possess a fine May-duke cherry or two, from which they annually realize a nice little profit, are in the habit of affixing a miniature windmill, the sails of which are sometimes represented by a very warlike looking character, who carries a sword in each hand. These are brandished to and fro with the utmost dexterity, by every puff of wind. Such prove pretty efficient for some time, but, like most of the scarecrow family, their novelty and their terrors vanish together, and, not unfrequently, the powder-flask and shot-bag steps in to their assistance. Much the same may be said of stuffed figures, of fierce looking personages posted in cherry or other trees. We have frequently seen birds take up a position on the very shoulders of one of these belligerent looking characters. Here, again, the gun frequently comes to the rescue. Perhaps the best of the scare-away family, after all, are the suspended threads of worsted, or string, of certain colours, about the object to be preserved.

Birds, somehow, possess a sort of instinctive dread of every thing which looks like an entrapment. There seems to be some difference of opinion as to the colour of this article; some say white, others contend for red. It is not improbable that a combination of the two would be most efficient. We cannot, however, speak conclusively as to this point; we have found the white of much service, and the whole thing requires and deserves a much farther trial; let us hope that our amateur friends will do the public a service by testing and making them known. The pages of *THE COTTAGE GARDENER*, at least, will always be open to well-attested information of the kind.

Another very old plan belonging to this class, is to drive in stakes at an angle of about 45°, and suspend a string from the point, from which dangles two pieces of glass, which are so close as to chink with every puff of wind. Some persons suspend a potato or turnip with a feather or two stuck in, making a sort of hobgoblin bird. These we have found tolerably efficient over beds of small seeds, provided they are not placed until the seeds are just emerging from the soil. Another and simple mode we may add here, and that is, the laying very branchy brushwood over the object to be guarded. This we have often tried with small seeds, but its appliance to fruit-trees is somewhat difficult. Under the dwarfing system, nevertheless, large boughs, or branches, full of spray, might be made to surround the object.

The last stratagem we will name is what we may term the decoying system: this is not in very com-

mon practice. It consists in placing tempting food, of any kind, in another portion of the garden from which the objects stand for which the protection is desired. We have found this mode to answer pretty well; but one difficulty meets us at the outset, viz., what material will be at once more tempting and yet sufficiently economical? It frequently happens that a few of the last year's seeds, such as radishes, cabbages, broccolis, &c., of which the birds are known to be extremely fond, remain in the seed-papers, not having been wanted. Such are too stale to be relied on for a crop; and if soaked in warm water for a few hours, and then taken out, and set in a damp place, many of them will germinate: these, then, may be sprinkled in patches, as decoys, in a sprouting state. This we have frequently done, and they have, in general, answered the purpose intended.

Last of all, we need scarcely remind our readers of the utility of a good noisy clapper. This, indeed, in the hands of a vigilant boy or girl, is fairly worth all the others together. The drawback of expense, however, tells sadly against this practice; and we fear it can hardly be adopted in gardens on a very small scale. It requires, moreover, to be handled very early in the morning. Many of these rogues perform the greatest depredations soon after daylight. The common bullfinch is the greatest enemy to fruit blossoms of any of our ordinary birds; and we are not aware that it has any redeeming qualities worthy of notice. Be that as it may, the merits of the bullfinch, if any, are dearly paid for, by the loss, perhaps, of one-half our blossom-buds. Every pains, therefore, should be taken, during the nest season, to hunt for and destroy their eggs; more especially as their destructive properties are not confined to the fruit-garden. Our worthy coadjutor, Mr. Barnes, can, no doubt, bear testimony to their voracious powers amongst our garden crops, particularly the cauliflower, brocoli, and cabbage families.

ROUTINE WORK.—As miscellaneous matters appropriate to the season, we would remind both amateur and cottager of the necessity of seeing that all newly-planted trees are well staked and mulched; especially standard trees, as to the staking. It is astonishing how much damage occurs to the young fibrous roots through "wind waving;" not only are they destroyed as soon as formed, or seriously bruised, but a hole or socket is formed around the stem, which, in retentive soils, becomes a puddled dish of water, that in a cold and stormy spring prevents the emission of those luxuriant fibres from the main stem, which soon, under proper encouragement, overtake the older roots: these, through transplantation, have become constricted, or, in technical phraseology, "hide bound." These evils provided against, and a good mulching applied, the trees will be found to make the most rapid progress, provided due attention has been paid to our former advices concerning the preparation of the stations.

WATERING.—Spring, with all its usual concomitants of fitful, wet and dry periods, so peculiar to our British clime, having arrived, it becomes the ardent cultivator to be prepared to meet the emergencies of a period of drought. The extreme one of wet we have already endeavoured to provide for. Be it known, therefore, that under the dwarfing or platform system, trees become by far more sensitive to atmospheric changes of this description. The opponents of these plans, for promoting a much earlier fruitfulness, will, no doubt, urge that such artistic modes only entail additional labour. Be it so. We do not see why advances in this matter should not be

exposed to prejudice, as well as in all other courses which shake the foundations of that venerable old lady, "prescription." Whilst the pillars that support the throne of mighty monarchs shake to their very foundation in these investigating days, why should her's remain "firm as Ailsa rock?" Watering, then, if productive of benefit under the old system, is still more so with regard to the one we propound in these pages. The amateur will, of course, secure this point: once recognizing a sound principle, let us steadily and unflinchingly carry it out. The word "trouble" must be expunged from the dictionary of those who are determined to excel. As to the cottager, we hope that while he is digging for his swede turnips in his over-hours, that his children will be taught betimes to carry the water-pot and to pull out the weeds. Such a course will not only be an immediate benefit to the family, but it will tend to produce an industrious race, and to impress upon them the lesson that the future must not be forgotten whilst the present is being cared for.

R. ERRINGTON.

THE FLOWER-GARDEN.

LAYING OUT A GARDEN FOR FLORIST FLOWERS.—This is the concluding paper on laying out gardens. Now, in order fully to express what we conceive a florist, whether amateur or cottager, ought to have and to do, if he enters with all his heart into the culture of those eminently beautiful flowers, we shall suppose the garden destined for their culture to be a plot of ground without anything on it. A tolerably good fence should surround it,—a wall five or six feet high would be the best. Should the ground be turf, let it be pared off, and laid up neatly in a long heap to decay and mellow; this will be invaluable as a principal ingredient in composts for future use.

Aspect.—If you have your choice of aspect, let the ground be rather sloping, facing the south-east, and the situation should not be low; for in such low-lying places the late frosts of spring, and the early ones of autumn, would be most injurious, and often destructive to such plants as are then in bloom. For instance, we have often seen dahlias completely cut by autumnal frost, even so early as September, in low situations, whilst on a moderate elevation they were fresh and blooming. The reason of this is easily explicable, for it is well known that cold air is heavier than warm air; during the day the sun warms the air in the valley, and, as soon as his power is departed in the afternoon, the colder, and, therefore, heavier, air on the hills slides or settles down into the valley, displacing the warm air, which, on account of its lightness, rises into the higher regions of the atmosphere. Now, if the heat of this colder and heavier air be below 32°, the plants exposed to it, that are too tender to bear a single degree of frost, consequently suffer sooner than those on the higher and warmer grounds. If, therefore, you can choose the situation, let it be of a moderate elevation. On the other hand, we would not advise you to choose a plot of ground for the culture of florists' flowers on the top of a high hill; this would be nearly as bad as the low one. Extremes either way ought to be as much as possible avoided. Should you be so unfortunately situated that you have no choice, you must exercise your skill and forethought to preserve your flowers from the injury they are liable to in consequence of being in either extreme of situation.

Furniture of the Garden.—Having considered the

aspect and situation of the plot of ground, we will now proceed to notice and describe the things necessary for a florist's garden. They are,

1. Pits, frames, and hand-lights, including a forcing-pit.
2. Stages for auriculas, polyanthus, carnations, and picotees.
3. A rose plantation.
4. A tulip bed.
5. A ranunculus bed.
6. Beds for verbenas, pansies, pinks, and dahlias.
7. Awnings and other shelters.
8. Potting-shed, bench, and tool-house.
9. Arbour.
10. Compost-yard.

Plotting out the Ground.—The situation and size of each of these requisites having been duly considered, put stakes down to denote the different places where they are to be. The pits and frames should be in the best-sheltered part of the garden, open to the south, and protected from the north-east and west winds by either the walls or evergreen hedges planted for that purpose; the stages for auriculas, &c., should be on the west side of the garden, facing the morning sun; the arbour may be on the east side, and the tool-house and potting-shed behind, or on the north side of it; the compost-yard should be on the same side, down to the north boundary; a compost-yard being rather unsightly, plant a hedge of some kind to hide it—beech or hornbeam are good for this purpose. Having staked out these main things, then form your walks, so as to be convenient for each place above mentioned; let the gravel be close to the walls of the pits. The rest of the ground should be laid out in beds, so proportioned in size as to hold the different kinds of flowers you intend to cultivate: dahlias and roses will occupy the largest portion; the beds of tulips and ranunculus should be in the most open and airy part, but sheltered from the cold and windy aspects. The awning mentioned as a necessary requisite is intended to shade these beds, and the stage when the plants are in flower on it, from the rays of the sun, and from wind, frost, and rain.

ROSES FOR BEDDING.—We have often been surprised at the demand for flowers for bedding purposes, that is, for flowers of distinct colours, of one kind, for each bed. "Anything new for bedding?" is the perpetually recurring inquiry. Every nurseryman that has customers for plants for this purpose is often puzzled how to supply novelties; many things have, in consequence, been recommended, and made use of for one season, that have utterly failed to please, either on account of the fewness of their flowers, or the want of decided colours, or a succession of bloom. The passion for such new things has in some degree prevented the use of others of decided merit, and of none more so than the flower with which we have headed this paragraph. We have had some inquiries as to what are the best roses for bedding-out purposes, and shall endeavour to give a few names, with their colours and seasons of flowering; a list, we hope, that will be useful to others as well as to our correspondents.

The rose, by reason of its beauty, clear colours, fragrance, fine bright foliage, and capability of taking any form, either upright or prostrate, renders it peculiarly well adapted to plant in masses of one colour and one kind in each bed. Roses are classed first into two grand divisions, summer blooming and autumn blooming; these are again divided into

several sections. We will just give the names of each.

1st Grand Division.—Summer roses, flowering from May to July. Sections:—1, Provence; 2, Moss; 3, Damask; 4, Alba (white); 5, Gallica (French); 6, Hybrid Provence; 7, Hybrids of Chinese, Bourbon and Noisette; 8, Scotch Roses; 9, Austrian; 10, Sweet-brier.

2nd Grand Division.—Autumnal roses, flowering from July to November. Sections:—1, Perpetual Moss; 2, Perpetual Scotch; 3, Damask Perpetual; 4, Hybrid Perpetual; 5, Bourbon; 6, Noisettes; 7, China, or Monthly Roses; 8, Tea-scented China.

Some readers will no doubt be surprised that there are so many classes of these beautiful flowers; yet there is good reason for thus dividing them, as it enables collectors to choose such as will suit their various wants and purposes, and to select them also to bloom at any particular time of the year those flowers may be wanted.

Roses suitable for beds are kept in pots by most nurserymen, and, therefore, can be had at the time the beds are ready for them. The seventh and eighth sections of the autumnal roses are the China (*Rosa indica*); this group contains the greatest number of kinds for the purpose. Below is a select list from this section, and we shall, from time to time, continue to give such selections from each group as are, in our judgment, the best to plant in the flower-garden in masses.

CHINA ROSES SUITABLE FOR BEDDING IN GROUPS.

White.—Madame Plantier (Hybrid China); Mrs. Bosanquet; Camellia blanc; Duchess of Kent.

Yellow.—Jaune (Tea-scented China); Eliza Sauvage (ditto).

Rose-coloured.—Adam; Madame Goubault.

Red and Scarlet.—Fabrier; Baronne Delage.

Crimson.—Fulgens; William Jesse.

Dark Crimson.—Cramoisie superieure.

ROUTINE MANAGEMENT.—After heavy rains the soil in the beds and borders of the flower-garden will be hard and chapped; when it is so, stir the surface with a rake, breaking the lumps; be careful, however, not to disturb newly sown annuals. Roll and mow lawns. Keep a good look out for the aphides, and destroy them with tobacco-water, or sprinkle them with Scotch snuff. Smoke your pits and frames frequently with tobacco. Attend to creepers, and train in young shoots before they become entangled. Roll gravel walks frequently, especially those lately made. Evergreens may yet be planted, but use puddle, and water freely in dry weather.

FLORISTS' FLOWERS.

CARNATIONS AND PICOTEES.—These should be finished potting, and may now be placed on the stage to bloom. Stir the surface of the soil in the pots frequently. Let them have the benefit of gentle showers, but protect them from heavy beating rains and sleet, which may yet occur.

PINKS.—These lovely, fragrant flowers should now be strong, healthy, and beginning to throw up their flower stems. They require some attention to keep the soil in the bed open and friable. Have a small Dutch hoe, and stir the surface with it frequently: this will destroy all weeds, and refresh the plants much.

PANSIES.—The same treatment is requisite for this favourite: some of them will be in flower, and should be protected from heavy rains. This plant sometimes takes a fit of disease, and dies off suddenly at the root, whilst, for a time, the top appears fresh and growing. When you observe this, pull up the plant directly, remove the soil, and put in a healthy plant. If the kind is scarce with you, put in tops of

the diseased plant as cuttings, first cutting away all the sickly part of the stems. Place the cuttings in a sandy soil, under a hand-glass, in a shady part of the garden: they will make fine plants, and will flower in the autumn.

ERICULA AND POLYANTHUS.—Such as are in flower should be removed to a cool shady situation, but still to be protected from wet: this will prolong the flowering season considerably. Amateurs desirous of purchasing will do well to visit the gardens of the dealers, and choose such kinds, whilst they are in flower, as may suit them. T. APPLEY.

GREENHOUSE AND WINDOW GARDENING.

HEATHS.—It is an old and trite adage that some have achieved greatness, and others have greatness thrust upon them. This letter is a practical illustration of the latter part of this proverb, for when I engaged to write these popular essays on window and greenhouse plants for *THE COTTAGE GARDENER*, I had no more idea that I should be called on to furnish one on the cultivation of heaths, than I have at this moment of running off to California in search of gold. But so it is, and thus "greatness is thrust upon me," as, without any doubt, to grow heaths *well* is the very highest branch of practical gardening in our day. Yes, to grow such specimens of heaths as are now entered for competition round London, is the highest ambition of our best gardeners, who have long studied the nature of plants, and the power of cultivation over their wild natures. Therefore, unless the eye and the hands have had a certain amount of previous training in the art and mysteries of cultivation, it is as certain as a mathematical axiom, that the tyro in heath cultivation will fail in his first few attempts. Hence my resolve not to broach the subject till after I had traced the whole circle of the catalogue, supposing that that could be done in the compass of a single lifetime. Consequently, should any of our kind readers be tempted to begin heath growing from any thing that I may say, recommend, or suggest, and afterwards burns his fingers in the process, I hold myself exempt from all blame on that score.

From incidents of early childhood, I know that heaths and superstition grow very well together, and would lead one, if credulous and believing in second-sight, to prognosticate that many unlucky readers will fail in their first attempts to cultivate these plants; and the omen is this:—the week before last, I wrote a long letter on heaths, which was lost by some misconduct of the post-office; and that is a certain sign of bad luck to begin with among the heather, for that is our Scotch name for the heath. If I had my way, I would punish the whole race about the post-office, by compelling them to change their names, and assume that of McDonald, and then wear the badge of that loyal clan, which is a bunch of heather.

Now, having so easily got rid of all responsibility respecting these heaths, let me give you a quotation, which goes a long way to shew you what kind of plants they are, for it tickled my fancy very much the first time I read it. "Erica (or heath) is one of the most extensive and beautiful genera known in the vegetable kingdom * * * exhibiting a surprising diversity in their flowers, in which their great beauty resides. The richness of colour, the elegance and variety of form, the delicacy of texture, or the minute microscopic perfection of their corolla (flower), are

such as no words can describe. Lovely as even our wild moorland heaths are, they rank among the lowest in point of beauty in this extraordinary genus, in which all the hues of red, pink, and purple vie with each other in the most brilliant manner, assuming every tint but blue, and fading into the purest and most transparent white. Some of the species have the corolla as much as two inches long, in some it is not bigger than a peppercorn; in some it is long and slender, in others inflated like a flask, or dilated like a vase of the purest form, or as round as an air bubble; and there are many in which it is split almost to its base, and immersed in a calyx (cup encircling the flower), of which the texture and colour are even more brilliant than its own. Here, we have a species the surface of whose corolla rivals in evenness and polish the finest porcelain; there, another appears covered all over with hairs, exuding a glutinous secretion, which glitters upon its sides like solid crystals; and some, again, have their colours so dimmed by a loose shaggy coat, that their real tint can hardly be ascertained. There are even some in which the corolla assumes the very colour of the leaves, only clearer, brighter, and richer." This beautiful and highly-wrought description, although the best ever written on the subject, falls short of the reality. It is from the pen of Dr. Lindley, under the head of "Erica," in the Penny Cyclopædia—*Erica* being the scientific name for the heath genus, and is a transformation of the Greek word *ereiko*, to break, as the heath is as brittle as glass. Many country gardeners make a sad mess of this name, by accenting the *e* instead of the *i*.

Hear also what the late Mr. Loudon said on the beauty and elegance of the heath. "Of what other genus can it be said that every species, without exception, is beautiful throughout the year, and at every period of its growth? in flower, or out of flower, and of every size and age? Suppose an individual had the penance imposed upon him of being forbidden to cultivate more than one genus of ornamental plants, is there a genus that he could make choice of at all to be compared to *Erica*? Perpetually green, perpetually in flower, of all colours, of all sizes, and of many shapes." May *THE COTTAGE GARDENER*, therefore, without at first intending it, be the means of extending the cultivation of this, one of the most elegant families of plants.

Notwithstanding all this diversity of form and colour in their flowers, and although there are between three and four hundred kinds of heaths in England, they have all such a close family resemblance, that if you know but one or two sorts, you may readily recognise all the rest at first sight. Greenhouse heaths are natives of the Cape of Good Hope; and although you may have heard from some pedantic traveller, that "if you wish to see heaths in perfection, you must go (like him) to the Cape," they are of all plants the most miserable and half-starved-looking in their own country, when compared with those under English cultivation. Nevertheless, it is hardly fifteen years since the best specimens of them, brought for competition to London, were not much better looking than those in the wilds of our Cape Colony. Scotland took the lead in growing heaths, and kept it for a quarter of a century. Mr. McNab, the late lamented curator of the Edinburgh Botanic Garden, was the father of heath-growing in this kingdom; for I lived next door to him when he stood alone in that department, and I have seen every heath that was exhibited for competition in London for the last fifteen years. Mr. McNab wrote a pam-

phlet on their management—the best practical treatise on any subject in our language. It appeared, I believe, in 1832, and gave a great stimulus to heath-growing, which, added to the liberal rewards offered by the London Horticultural Society, brought the cultivation of heaths, in ten or a dozen years, to actual perfection. You may now see scores of heaths on the exhibition-tables worth ten guineas apiece, and some of them so large that two strong men can hardly lift one of them off from the ground; and we have no plants that can at all vie with them in beauty. No wonder, therefore, that they are such universal favourites with those who can afford to keep a greenhouse and a pit or two; *for to grow heaths in windows, or keep them in close living rooms, is altogether out of the question.* They will not even associate well with soft-wooded plants in a good greenhouse, after they are three years old; and before they reach that age they should never be seen in a greenhouse, but in dry turf pits, all by themselves, where they require no fire-heat, for this, at all stages of their existence, is more or less disagreeable to them. None but professional propagators can multiply them by slips or cuttings in anything like reasonable time, and to rear them from seeds is one of the most difficult manipulations in our craft; therefore, I need say no more at present on these two heads. Fortunately, however, they are amongst the cheapest plants that are sold, if we take into consideration the time and trouble necessary to bring them to a marketable state, for I saw them advertised last week, by the hundred, at a shilling each.

After all that has been sung and said to the contrary, there is no real difficulty in growing them if the proper soil can be obtained for them. In many parts of England no real peat for heaths can be met with. The nearest to us (at Shrubland Park,) is at Epping Forest, 60 miles off; but we get it down by the railway very reasonable, and it is become a regular branch of business to supply sacks of the "real stuff" from the London nurseries to all parts of the country. In London they use silver sand to mix with their peat; and for very young heaths they make this mixture, like their beverage "half and half;" and as the little things get out of their nursing-pots they receive less sand at every potting till they are stout enough to travel down the country by railway, when they have, or should have, one-third sand and two-thirds peat as their proper compost, and that is about the best proportions for future pottings; but some peat is more sandy than others, so that a specific quantity of sand, although absolutely necessary for the health of the plants, is not to be relied on from print. Silver sand is not at all necessary, except, perhaps, for the nursing stages; rough gritty sand, if well washed till every particle of earthy matter is got rid of, is more safe than silver sand, as it keeps the peat more open; but, like medical prescriptions, there is a good deal of prejudice about this point; therefore, whichever you think the best sand is *sure* to be the best, and if you use it liberally, and never sift your peat, we shall not cast out by splitting straws.

Now, the safest way to try your hand at heath-growing is this: ask the nearest respectable nurseryman to show you what remains of those he had down from London last October. If he does not propagate them himself, have nothing to do with older plants. Then inquire if, by taking so many of them, he will insure you that some one or two out of the lot will be in bloom till next Christmas, or some stated period. This being settled, offer him so much a head for them all round, bearing in mind that he

cannot well part with tolerable good ones that would make a good succession under a guinea per dozen. If you higgie much, he will probably throw out a bait, and offer you some inferior sorts at 18s. or even 15s. a dozen; and if you jump at this, you will be hooked as sure as Abdel Kader, and my advice will be thrown overboard. If this takes place before the middle of May, the plants may not have been yet potted this season; for it is not a good plan to pot heaths early, and the reason is that their roots being so very fine and delicate are peculiarly liable to be somewhat injured in getting over the winter; and, unless fresh roots are formed to be ready to seize on the fresh peat, it would be dangerous to re-pot them till early in May, when a fresh set of roots would be sure to be ready, open-mouthed for increased pasture. Now, whatever you may have to pay for your heaths, do not take them home unless they have been fresh potted and fully established in the new peat; and that you may easily know by turning one or two out of the pot; and I should not consider them past all danger till the roots could just be perceived peeping out through the fresh ball, because the first two or three weeks with them after potting is the same as teething-time with children.

We shall now suppose that you have your new heaths sent home in the condition insisted on, and the very first thing you will have to do to them is to double-pot every one of them. There is not a single plant in cultivation for which double-potting is more essential in summer than the heath. A pit would be the best place to put them in; but, whether pit or greenhouse, let them have plenty of air, and shade them in the middle of the day for the first fortnight or so, till they get well accustomed to the change.

This brings us to the end of May. In June, July, and August, young heaths like yours, and indeed all heaths not in flower, had much better stand out of doors, but still in double pots, especially young heaths; and this double potting will enable you to place them full in the sun, if you had the lights drawn off from them occasionally before they left the pit. But, to make sure against a sudden check, place them for the first fortnight in a shady situation, and after that they are much better in the full sun, as their roots cannot take any hurt if they are within two pots. Some people plunge the pots in sand or coal-ashes to preserve the roots from the effects of scorching sun, but I cannot recommend such injudicious treatment. I would prefer keeping them in a north or shady aspect all summer than in this way of plunging them; because, after heavy rain, the roots would suffer from too much damp, and, although they require a regular supply of water and plenty of it, they will not bear stagnation at the roots with impunity. The only objection to a north or shady aspect is, that after the turn of the season, when the nights begin to lengthen and heavy dews prevail, the heaths so placed make their growth more rapid than their share of sun-light will ripen properly; and, by the autumnal equinox, when it is time to put them under glass, they would be so fresh and full of unripened wood, that no one but an experienced hand could carry them through the winter safely.

To prevent their running up with long naked stems, it is a good plan to nip off the tops of all the leading shoots several times through the growing season, and every heath should have a regular pruning once a year, that is, when they are going out of bloom. A pair of sharp scissors is better than a knife for this purpose. The first part of the pruning business is to cut out all the dead flowers; and when

these are borne on slender twigs, you may cut off such twigs to within two or three inches of the principal branches, also any dead leaves or shoots. When this annual pruning takes place early in the summer, the strong side branches and all tops are cut in more or less, and the whole plant re-arranged with stakes, and neat tying, so as to form a regular head; the branches being opened out a little, to allow a free ventilation among the foliage, also that the light may reach all parts of the plant, and prevent the decay of leaves and twigs in the centre. But in all this handling, recollect the name means brittle, and the branches will not endure pulling about much. Autumn-flowering heaths are dressed in spring, and only the dead flowers and leaves are to be cut out after the end of July, for much stopping, or nipping, after that time would only encourage the growth of more young wood than could be ripened. With the usual routine of watering, weeding the pots, turning the plants round from time to time, tying up straggling shoots, and guarding against heavy winds, we shall suppose it now the middle of September. It is always dangerous to leave them out after this time, but they should not be put into a greenhouse so early if a pit is at hand. We often have fine weather after the first frost which cuts up the dahlias, and the glass may then be drawn off the heaths all day long, and abundance of air left on at night, thus, in effect, lengthening out to them the summer season.

November and December are the trying months for heaths. Those in a greenhouse must have a little fire heat occasionally, to expel damp; but there must be air admitted to the house whilst the fire is going; and in frosty weather, all the heat that they require is just to keep the frost out. Some gardeners do not mind if a few degrees of frost get at their heaths, but any heath that has its flower-buds formed for next season will run a hard risk of having them killed, although the plant itself may not sustain much injury. Indeed, I have seen Cape heaths, as tall as a man and bushy as a juniper, stand in open ground in the Edinburgh Botanical Garden, with six inches of snow and a smart frost upon them, without being in the least injured; yet I never can bring myself to permit frost in a heathery.

For young heaths, a good dry turf pit is a far better place than a greenhouse in winter, and with a powerful covering you may keep out any frost likely to happen in England. From October to February very little water will do for heaths: I have had them a month without a single drop. It is a good plan, when they do want water, to fix on a fine day, and take them all out of the pit, and water each pot according to its need. Scrape off the surface of the coal-ashes on which they stood, and add some dry ashes; clean the glass, rafters, and sides of the pit, and when all is dry again, and the pots well drained, return them to the pit. This would be of immense use to them three or four times during the winter; but we shall have time enough to talk of that, and of their spring management, and of that which is the greatest experiment of all—your first attempt at potting them.

D. BEATON.

THE KITCHEN-GARDEN.

SUCCESSIONAL CROPS.—Hoe and earth up *cauliflower*, applying manure water liberally to the earliest and strongest, and plant out successional small crops of them. Prick out also from the seed bed, and sow occasionally, a pinch of *cabbage*, *lettuce*,

and *spinach* seed, as well as of the small early varieties of *turnip*, for successional crops.

LETTUCE.—This vegetable succeeds best, from this time until August, if it is not transplanted. Our practice is to sow thinly in drills, and to thin out the plants to the desired distance, by which means we succeed in obtaining fine lettuce all through the heat of summer, and they are not so inclined to start for seed as those that are transplanted from the seed bed. A few successional crops of *brocoli* and *cauliflower* may also be grown in the same way very advantageously throughout the summer months. Sow them thinly in drills on well prepared ground, and thin out at the proper time to the distance desired.

SPRING-SOWN CROPS.—*Carrots*, *onions*, *parsnips*, *parsley*, and other spring-sown crops, now up in drills, should first have the surface of the earth loosened on some fine day, by drawing the rake carefully the cross way of the drills, and this should be followed up soon afterwards by shallow surface hoeing, which, as the plants advance and gain strength, must be increased to a greater depth.

SCARLET RUNNERS.—It will be found a very advantageous plan to place such as have been sown for transplanting in shallow trenches, which not only protect them from cold cutting winds, but is convenient for any temporary covering that may be required at night, as well as for watering during the dry season. *Dwarf kidney beans*, which are also tender plants and easily injured by cutting winds, may be treated advantageously in the same way.

ROUTINE WORK.—Trench up, without delay, all spare plots of ground where *borecole*, *early colewort*, and *brocoli* were grown, trenching in all refuse that is not fit for the cow, pig, or poultry. The *cucumber ridge* should be formed, and into this any old hard stumps, or other similar refuse, may be advantageously placed to decay, if not needed for charring purposes. Sow in succession, for salads, *mustard* and *cress*, *turnip* and *short-topped salmon radishes*, as well as *lettuce*; and if the last crop of *red beet* is not already sown, the present is a good season for sowing it. Moderate fermenting beds may also now be made for successional *melons* and *cucumbers*, and the linings around those where the fruit is beginning to swell off should be attended to by adding fresh dung. Admit air freely. Take care to place the fruit intended to be saved on a piece of slate, glass, or anything of that kind, to keep them clean and help them to swell off evenly. Melons are never so liable to crack if the blossom end of the fruit is pointed towards the north.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 25.)

DURING this soft and genial month, the tenderer sort of annuals may be sown in the open borders. They will not do well in cold situations, so that it is better to avoid disappointment by not attempting to raise them, for I know, by frequent experience, how disheartening it is to see our little charges dwindling and drooping round us. The most beautiful annual is certainly the China-aster. Its richness and variety of colour, the showiness of its form, and its autumnal bloom, make it very desirable in every garden; and even in mine, when *self-sown*, it has succeeded tolerably well; but spring-sowing has never produced fine flowers, and I should recommend ladies, whose gardens are chilly and late, to try whether autumn-

sowing would not answer well. Entire beds of these glowing annuals look splendid; in fact, they lose much of their beauty when sown in small patches; yet they may be put in wherever vacant spaces occur, for we can scarcely have too many. They grow richly sometimes in cottage gardens, and give great brilliancy to their sunny borders, where, indeed, most plants do well. I have often remarked how very luxuriantly both flowers and vegetables grow in the labourer's ground; a cottage nosegay, a cottage raspberry bush, a cottage cabbage, always seem sweeter and finer than those in larger gardens, and I have invariably made and heard the remark, that geraniums and other pot plants flourish better, and endure the winter more fearlessly, within the cottage lattice, than in the warm room and sheltered window of the lady amateur. Does it not seem as if the labours of the poor, as if their very pleasures, received a special blessing from Him who sanctified their humble state by choosing it as His own? And should not this thought make the cottage gardener not only contented with his lot, but deeply, unexpressedly thankful that *he has* "where to lay his head," and diligent to improve those means that God has given him to support his wife and family? How many hours are wasted at the "idle corner!" how many are guiltily spent at the beer-house! how many are as wickedly passed in wood stealing! which might be so usefully and happily employed in gardening, in cultivating the willing soil, and raising those wholesome roots and fruits that might feed him so abundantly in winter. If the cottager would consider these daily occupations as parts of his duty to God and man, his days would be longer, his sleep sweeter, his character fairer, and his profits an hundredfold.

China-asters when sown thickly must be thinned out when three or four inches high, so that they may not crowd one another. The young plants should then be carefully placed elsewhere, and watered freely to prevent their drooping. It is a good plan to place a flower-pot over all young plants, when first removed, till they are well rooted; they then seem scarcely to feel the change.

The stock is an annual of great beauty and richness, and may be sown now for autumn flowering. When carefully cultivated, they produce large and handsome flowers; and the double varieties then appear like tall spikes of roses. The scent is very perfumy also. They may be increased by cuttings in May. Let each cutting retain a small portion of the bark of the stem; plant them in a shady border, water freely, and cover them with a hand-glass or flower-pot till they have struck firmly. The shoots chosen should be strong ones of the same year's growth, and the leaves should be stripped off about half way up. The crimson, purple, white, and variegated varieties, when in bloom, have a splendid effect, both in the gardens of the amateur and cottager, and cannot be too freely encouraged. There is a little tender plant called the night-stock, which is perfectly scentless during the day; but when the dew falls its fragrance is delicious. I do not know whether it belongs to the species, but, as the names correspond, I speak of it here. I believe it is difficult, if not impossible, to preserve this charming little flower through the winter without a greenhouse; yet if only one is procured, and the pot sunk in the border nearest the sitting-room, as soon as the frosts are over, the odour in the evening hours is so extremely powerful that it will quite suffice for a garden of moderate size; and it is surprising that such a volume of rich, aromatic scent should flow from the little dingy flower that we

scarcely notice among the gay blossoms of the border. It is not always brilliant gifts or ready speech that mark true wisdom in the Christian "garden." The Spirit of grace is often unobserved or slighted till called forth into active exercise by Him who gave it, and the very seasons that cause other gifts to droop or disappear, draw forth its hidden fragrance. The chilly air of evening closes many flowers, and darkness hides them all; but the night-stock rejoices in the cool repose of nature, and adds her silent meed of praise to that of the glittering stars,

"For ever singing, as they shine,
The Hand that made us is divine."

When our fragrant night-stock tempts us to the window or the garden in the calm and silent evening hour, let us not suffer inanimate nature to rejoice alone, but let our hearts send up to God their incense too, for blessings unfelt by all but man, and of which even *he* can never taste the fulness till the host of heaven shall "fall down as the leaf falleth off from the vine, and as a falling fig from the fig-tree." Wherever we turn our eyes, when among our fruits and flowers, they repeat some sacred lesson for our hearts; for God has vouchsafed to use them continually in addressing the creatures of His Hand; and scriptural imagery is all drawn from the daily scenes around us. The cottager may be an unlearned and ignorant man in things belonging to this world; but he may, among his rising crops and blossoming trees, gain knowledge, compared with which "the wisdom of the world is foolishness."

TO CORRESPONDENTS.

FORSTHIA VIRIDISSIMA (Flora).—This is a new hardy plant from China; it has yellow flowers, and most easily cultivated. Being new, give it a place against a wall or fence for a few years.

MIMANAGH OLIVARER (An Amateur).—This, which you say was once a splendid plant, but now is without a blossom bud, and has been dosed with super-phosphate of lime until all its leaves fell off, is truly in a pitiable condition. Shake all the soil from the roots, and shorten the bare old ones, leaving only the small fibrous roots. Cut all its shoots likewise to the old wood, else it will ever blossom after standing so long barren. Repeat it in good loam mixed with one-third sand, and keep it in the warmest part of the house, but do not stand it in water this season.

TULIPS (Ibid).—These, like all other bulbs, make roots. Open the soil now round one, and you will see them in abundance.

SOAP-SEDS (A Subscriber, Birkenhead).—You ask whether these are good for watering window-plants, and the same, as well as trees, in gardens; and we may reply as generally that they are good for all the plants you mention, but seeds are never watered with such stimulants. Give it to plants in the open garden once in ten days, and for fruit-trees and evergreens you need hardly reduce the strength of the suds, but, to be on the safe side, add one-half rain-water to them, and give this mixture more often. There are no seedling plants that will flower well in your window in summer by sowing them now, except hardy or half-hardy annuals, and they will do much better in the open border; but we shall consider and let you know.

PEARS (A Rectory, Somersetshire).—You have sent us a list of pears from which you wish to increase your stock of trees, and we have consulted Mr. Rivers, of Sawbridgeworth Nurseries, on the subject, and he has selected the following, which he says he knows to be excellent in good soils in the climate of the southern counties. "This," observes Mr. Rivers, "is of great importance, and, as an instance, Fortune's Parmentier will not ripen north of Trent, unless in a very warm soil and situation." In the following list, the months named are those in which the fruit is ripe. *July*, *Beaumont d'Or*, *Angoumois*, *Benoist*. *Sept.*, *Williams' Ben Chretien*, *Beurre d'Anjou*, *Jacques de Fontenay Vender*. *Oct.*, *Duchess d'Orleans*, *Marie Louise*, *Fondante d'Autumne*. *Nov.*, *Beurre Rose*, *Thompson's*, *Deux ans*, *Urbaniste*. *Dec.*, *Hacou's Incomparable*, *Triomphe de Jodoigne*. *Jan.*, *Beurre Lapeller*, *Knights' Monarch*. *Feb.*, *Incomue Van Mons*, *Suzette e Havy*, *Duchesse de Mons*. *March*, *Beurre Bretonneau*. *April*, *Fortune's Parmentier*, *Bergmotte d'Esperen*.

VINE (H-U, Bristol).—The branch may be removed without any fear of the stump bleeding if you wait until the vine is in full leaf. When a tendril is once formed no fruit is afterwards produced on that tendril. Tendrils are abortive boughs.

DISSOLVED BONES (H. F.).—No wonder you have destroyed your peas, cauliflowers, and sea-kale, since you say you gave the liquor to

them freely. You should have mixed it with ashes, and then sprinkled it over the surface of the soil; not in a larger quantity than is directed at p. 62 of Vol. I.

PRUNING PEAR-TREES (W. H. G.).—Your pear-trees, planted in the February of this year, intended to be grown as dwarfs, and which are just beginning to vegetate, do not prune by any means. They will, perhaps, shoot weakly at first; never mind that. Take care, however, to apply a coating of half rotten dung, according to our advice under the head "Malching." Be sure to water them also, if dry weather occurs; not too much at once. As your wall is only seven feet high, you may train your shoots the first year nearly upright. Next winter you must lower most of them into nearly horizontal lines, when, if they possess a good root, they will in the ensuing spring produce nice shoots from the centre; these will, in due time, fill the wall.

HEATHS, &c. (A. Young Florist).—You will find, from our columns to-day, that to cultivate heaths as window plants is a hopeless effort. If you determine to persist, you will read, in the same columns, how they ought to be treated. You will see, in Vol. I., at p. 79, how you ought to water them, and, at p. 311, the soil which will be most hereafter from Mr. Beaton.

BORDER FLOWERS (Nemo, Mildenhall).—We are much gratified by your letter. If you will refer to pp. 34–35, of our first volume, you will find a list of flowers which will keep your border gay from early spring to late in the autumn. A still more copious list of early border flowers is given at p. 244. We should prefer a succession of flowers to those you mention, for these bloom for a season, and then your border would be dreary. If you require more particulars, write to us again.

HARDY MELON (J. Godfrey).—The small melon "about the size of an orange, and requiring but little more heat than the vegetable marrow" is the "Queen Anne's" and is sometimes called the "Early Queen," and the "Queen's Pocket Melon." We dare say you could obtain it of any of the seedsmen who advertise in *THE COTTAGE GARDENER*. We will answer your other question next week.

TAROEEN (Dianthus).—In the islands of the Pacific, when any place is declared by the priests to be unholy, and not to be approached, it was said, in their language, to be *taroeen*.

BESS (G. W. Pretty).—You will find your case met by Mr. Payne's "Bee-keeper's Calendar" for May, which we shall publish next week; but your letter, probably, will appear also, with a special comment, as your misfortunes in bee-keeping have been experienced by others.

SPADE HUSBANDRY (W. C. G.).—On this subject read Rham's *Flemish Husbandry*, in the Library of Useful Knowledge, and Dr. Yelowly's Essay, in No. 4 of the *British Farmer's Magazine*, New Series. We do not know, from experience, either Dr. Newton's "patent dibble," or his "wand-row cultivator." We shall be glad to have the report of your trial.

HISTORICAL FLOWERS (Margaret).—This book is published by McGlashan, Dublin; but may be had of Orr and Co., London.

DRESSING FOR PEACH-TREES (Rev. P. W.).—You will find the exact proportions for this at p. 157 of No. 16—viz., four ounces soft-soap, one pound flowers of sulphur, and one gallon of water.

CHALK VERSUS LIME (Ibid).—If you merely require to add a little calcareous matter to your soil as a food for the plants it bears, a dressing of lime is to be preferred. But if you wish to improve the staple of your soil, then you will require so large a quantity that chalk must be employed, if only on the score of economy.

DICTIONARIES (Tyro).—"The Modern Gardener's Dictionary" is devoted to gardening; "Paxton's Dictionary" is botanical. The first may be had for five shillings, the latter is priced fifteen shillings.

ANTS (A. A.).—We have never had occasion to wage war against these insects. The only colony we ever had to depopulate was small; and we fairly drove them away by digging it up twice a day. They persevered against these daily earthquakes for about a week, and then emigrated. Try spreading gas-lime over their haunts.

FLOWER SEEDS (W. J.).—Messrs. Henderson, Pine-apple-place, Edgeware-road, will supply those you refer to.

WEAVER'S COTTAGE ARCHITECTURE (S.).—We cannot tell your bookseller could not obtain it. It is published by H. Pope, Bulgate-row, London. "The Labourers' Friendly Society." Excerpt Hall, London, has published some plans such as you name, but they do not come within our sphere.

CUPHEA PLATYCENTRA (P. S.).—You have given this, perhaps, too much water, and your "good mould" most likely has not enough sand mixed with it. You are quite right to keep it under a bell-glass whilst it looks languishing; if it improves whilst so covered it will intimate that it is not sufficiently established to bear exposure to the dry air of your sitting-room. Your seeds marked *Alonsoa irides* are those, perhaps, of *Alonsoa inaequalis*. There was no insect in the packet when it reached us. We shall publish an extract from your letter, and shall be glad to hear more of what you are pleased to call "chatter."

GENTIANELLA (Marianne E. S.).—The reason why this (*Gentiana acutis*) does not bloom in your garden is probably that the soil is too light and too poor. The finest we know are grown in a damp soil, in patches; they are manured every year, early in March, with a mixture of equal parts strong loam and leaf-mould. Do not, on any account, dig or fork near the roots of your Gentianella, but merely put the mixture on as a top-dressing, sprinkling it thickly but carefully between and around the plants.

SLUGS (J. B.).—The best traps are little heaps of fresh brewers' grains, or boiled bran; and the best mode of destroying slugs is to sow quick-lime over the surface of the bed of an evening, when they are out feeding. To prevent their approach to any crop, sprinkle coal-ashes, not sifted too finely, around it.

POULTRY (Ibid).—Your hens are bad layers, or you would have now more than six eggs daily from 26 hens; try giving them a little sunflower seed. We shall make arrangements for a series of Essays on Domestic Poultry, so soon as we can meet with any one to be relied upon who practically understands their management.

MURZOOK BEANS (Birch).—You will find directions for making these at p. 79 of vol. i., and at p. 17 of the present volume. If you wish for any further particulars, let us hear from you again on the points requiring explanation. The dung for these beds need not be from horses fed exclusively on corn, but the higher they have been kept the better, both for the produce and the manure.

ASPARGUS (A.).—This is a native of England, being found on its sea-shore in many places. There are only two varieties—the green and the red-topped; and the "Giant" is only the latter induced to grow to a large size by an unlimited supply of rich manure during its time of growing.

PEAR-TREE PRUNING (A. F. and R.).—You will find this given fully at p. 127 of vol. I. Mr. Errington will probably discuss plums pruning in an early number.

COMPANION GARDENER'S ALMANAC (G. A.).—It has not been published this year. The other contents of your letter shall be published.

PEACH-TREES WITHOUT BLOSSOM (I. B. Quarry).—These, only seven years old, on a west wall, have also only a few leaf-buds on the top branches, whilst the bottom shoots are dead. These must not be cut back, as you propose, into the old wood. We have frequently renovated shoots like these by larding them in July, introducing plenty of buds on the upper side of the shoots. Mutilate them, by all means; and endeavour to get as luxuriant a growth as possible, in order to get the bark to rise freely. The luds had better come from some other very healthy tree in the neighbourhood. We have found nectarine-luds take best on the peach under these circumstances.

VINES IN GREENHOUSES.—A Subscriber will see shortly that we shall be enabled to take up the subject of vines in a greenhouse, and, indeed, where space offers, other fruits suitable to such structures.

CAMELLIAS (A constant Subscriber).—Mr. Beaton will probably contribute an article on these, from which you will glean what you want. Give them large doses of water now while they are making their annual growth. It will be time enough to pot them at the end of summer. Ghaena is a good manure for roses and ananias, and all plants, including the camellia, if used in moderation. See the proportion, at p. 3, Vol. II.

CREEPERS FOR A SOUTH WINDOW (Margaret).—Your boxes are five inches wide and five inches deep, and you wish to know whether these, unshaded, would nourish creepers to train up strings, for the protection of misgenet, which they are also to contain. The boxes will do well as you propose; but better if they were 10 inches deep instead of five inches. The best plant to train on strings outside of a window is the Canary nasturtium (*Tropaeolum Canariense*). The next best is the Major convolvulus. They will do better if each is in a separate box. The Maurendia Barchana will not associate with either; nor will it do much good unless you could plant a strong old plant at first. Lophospermum would also do well that way; but your boxes are not deep enough for it. Use very rich soil and plenty of soap-water direct from your hand-basin.

BEGONIAS AEROLIA (Tyro).—You say that this beautiful fragrant native of Peru sheds its leaves before fully developed, and that it has been during the winter, and is now, quite leafless. You watered it moderately whilst in leaf and not at all during the winter. —You managed it perfectly right; it only wants fresh soil and encouragement, for it is the greatest feeder in the vegetable kingdom. Prune all its last year's shoots to two or three eyes; shake every particle of soil from the roots, and you may reduce some of them. Report in the richest compost, and when the plant is in leaf—say by the end of May—plant it in a sheltered place out of doors, first making a pit, two feet deep and three feet over, and filling this with rich loam and one-third rotten dung. Stake it firmly, and as soon as it is in active growth give it 10 gallons of rain-water every week. This will answer better than liquid manure if the compost is good at first. Let us hear from you next September how many blossoms it has. About the middle of September cut its roots with a spade round half the circle of the pit, and within two feet of the edge, and give a large watering to sustain the check. In ten days afterwards cut the other half of the roots, and as soon as the wounds are healed the plant will be ready to move again, or to be taken up with a large mass of soil, and put into a dry shed from which the frost is excluded, and kept nearly dry all winter. No pots are large enough for this plant after a few years.

HEMLOCK SPRECH (Abies Canadensis) (A Subscriber, Elmstone Rectory).—This is one of the most elegant of the fir family in England; but is of extremely slow growth in most parts of this country, though as hardy as the Scotch fir. Plants of it about a yard high, after being transplanted three or four times in a nursery, could hardly fail in your old garden soil. Those that have been kept many years in pots should not be planted; they seldom do much good; and that is, no doubt, the fault with yours which die at the points.

FEUCISIA (Lucy Hannah E.).—The inclosed flower was a cineraria. The seedling will soon outgrow the curl in the leaves as the weather gets warm.

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WEEKLY CALENDAR.

M	D	W	APRIL 26—MAY 2, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
26	TH		Lesser Whitethroat heard.	Hedger Mustard.	4.3 a.	4.7	11 27	4	2 19	116
27	F		Cuckoo first heard.	Larger Narcissus.	41	14	morn.	5	2 29	117
28	S		Reed Bunting sings. (fledged.)	Cuckoo Pint (Arum).	39	16	0 24	6	2 38	118
29	SUN	SUN. AFT. EASTER.	Young Redbreasts	Herb Robert.	37	17	1 11	7	2 47	119
30	M		Martin first seen.	Cowslip.	36	19	1 48	8	2 55	120
1	TU		ST. PHILIP & ST. JAMES. Lian. & Hort. Sec.	Tulip.	34	20	2 21	9	3 3	121
2	W		Young Rooks fledged.	Charlock.	32	22	2 49	10	3 11	122

ST. PHILIP was the first disciple, and one of the Apostles, of our blessed Lord. Little more is recorded of him in the New Testament but that he was a native of Bethsaida. The most trustworthy of historians who subsequently mention him, state that, in company with St. Bartholomew, he preached the Gospel in Syria and Upper Asia, suffering martyrdom at Hierapolis in Phrygia.

ST. JAMES, commemorated by this festival, is spoken of as the brother of Jesus (Matt. xiii. 55), and was, probably, the son of Alphaeus, mentioned in the same Gospel (x. 3), for the Greek word rendered "brother," is often used as descriptive of a cousin. He was one of the Apostles (Gal. i. 19), and had the greatest influence over the church at Jerusalem (Acts xv. 13), of which church he is believed to have been the first bishop. He was killed there, during a tumult, about A.D. 62. He is the author of "The Epistle of St. James."

MAY-DAY.—From the earliest antiquity this day has been one of festivity, hailing, as it were, the perfect return of spring, and celebrating her triumph over winter. It is quite true that in our fickle climate this surly season "oft lingers in the lap of May," but it is only to expire. At Rome, in the Florida, was now welcomed the reign of the goddess who is then worshipped as the guardian of flowers. Those festivals find a memory among us in our country "Mayings," and within a comparatively few years all classes joined in the merry gatherings. Chaucer relates that in his time "forth goeth all the Court early on May-day, both most and least (highest

and lowest), to fetch the flowers fresh, and branch and bloom." The people, however, gradually became disgusted with the celebration, and Charles the First's was a headless opposition to the spirit of the times, when he issued a proclamation for the encouragement of May-games and the setting up of May-poles. They were forbidden by an ordinance of the Long Parliament, and by Charles the Second were again revived, but they have since gradually decayed, until they remain only as scenes of low debauchery in obscure villages, and as dances of chimney-sweeps in our town districts.

PHENOMENA OF THE SEASON.—One of the most interesting events of this month is the arrival of the cuckoo, whose notes seem to us in childhood to be the voice of some wandering spirit of the air. The average of twelve years' observation gave Mr. Jenyns the 27th as the day about which this voice may be expected, yet he heard it as early as the 21st of April, but in some years not until the 7th of May. In Sussex, the 14th of April is called "the first cuckoo day," that being its earliest period; but the 21st of April is the day on which it is there commonly heard. The martin is sometimes seen in the same county on the 29th, but almost always by the 30th of April. Mr. Jenyns' observations were made in Norfolk, and these earlier occurrences of the same events in Sussex shew the gradual travelling of the phenomena from the south towards the north of our island. It is not known to every one that the "cuckoo note," so familiar to us all, is the note of the male only. That of the hen is quite unlike it; being, as Mr. Jenyns observes, "a kind of chattering cry, consisting of a few notes uttered fast in succession, but remarkably clear and liquid."

INSECTS.—At p. 261 of our First Volume, some particulars are given concerning the Gooseberry Saw-fly, and we now give a further description and a drawing of this insect, the caterpillars of which are such a pest. The cross lines shew the natural size of this Saw-fly. This insect, which has been named by entomologists *Neantus trimaculatus*, *Neantus ribesii*, *Tenthredo grossulariæ*, and *Restitredo ruficornis*, comes forth in the course of April. Its body is yellowish-brown; its antennæ nine-jointed and brown; the crown of the head, eyes, three large spots divided by a light line on the back, and a large spot on the breast, are all black; the body, or belly, is orange; the wings reflect the colours of the rainbow; and their nerves, with a large spot on the front edge of the fore wings, are brown; the legs are brown also. The female lays her eggs along the principal nerves on the underside of the gooseberry leaves, and less frequently on those of the red and white currant. The eggs are hatched within ten days; and the arrival of the caterpillars may be known from the leaves being eaten through into numerous small holes. These caterpillars are pale green, with one ring at each end yellow; the head, tail, feet, and rows of spots on their sides, being black. Successional broods are hatched from the beginning of May until October, but it is during May and June that they are usually most abundant and destructive. Some of these descend into the earth from cocoons, and bring forth fresh flies at the end of the summer; but the later broods of caterpillars remain in their cocoons throughout the winter, and give birth to the earliest spring-swarm of saw flies. The best remedies were suggested in our First Volume.

APRIL	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
26	Fine.	Fine.	Rain.	Fine.	Fine.	Showery.	Cloudy.	Fine.
Highest & lowest temp.	66°—55°	66°—39°	59°—34°	73°—45°	63°—47°	53°—36°	57°—43°	54°—26°
27	75°—46°	Fine.	Fine.	Fine.	Showery.	Fine.	Showery.	Showery.
28	Showery.	Fine.	66°—33°	64°—29°	64°—44°	54°—36°	61°—43°	57°—30°
29	76°—45°	72°—35°	Showery.	Fine.	Showery.	Fine.	Fine.	Cloudy.
30	Fine.	Fine.	54°—40°	66°—36°	64°—50°	61°—27°	66°—46°	56°—28°
MAY 1	71°—42°	71°—43°	Cloudy.	Fine.	Fine.	Fine.	Stormy.	Fine.
2	71°—42°	Fine.	59°—43°	66°—38°	66°—49°	66°—33°	57°—25°	57°—27°
	68°—41°	74°—41°	Fine.	Fine.	Showery.	Fine.	Showery.	Fine.
	Fine.	Fine.	69°—49°	66°—37°	63°—51°	61°—44°	61°—30°	62°—29°
	76°—42°	73°—44°	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.
	Stormy.	Fine.	70°—42°	70°—38°	65°—48°	56°—51°	56°—44°	60°—26°
	76°—45°	66°—36°	69°—46°	71°—36°	64°—36°	68°—52°	59°—36°	64°—31°



If old John Gerarde could be summoned from the grave, where he has now rested nearly five half centuries, and we wished in a moment of time to shew him what has been, and is now, doing for horticulture since he was gardener to Lord Treasurer Burleigh, and cultivated his own Physic Garden in Holborn, we would bid him cast his eye over the pe-

riodicals devoted to gardening, now lying upon our table. Such evidence would strike him the more forcibly, because he was a writer on the same subject, and his huge "Herbal, or General History of Plants," is a monument of his industry and skill, and of the best specimens of horticultural literature and draughtsmanship producible before the year 1600.

That literature was accurate so long as the authors confined themselves to what they had seen with their own eyes, and cultivated with their own hands, but if they had restricted themselves to such genuine knowledge, there could have been no "Herbals" of two thousand pages in those days. To fill such monstrous volumes, recourse was had to classical fables, and not less absurd narratives of each plant's medicinal virtues; but in the periodicals now on our table, it would be difficult to decide which deserves most praise, the varied and accurate horticultural knowledge they contain, or the extreme beauty of the embellishments. We can imagine old Gerarde to exclaim, "What! have you now three papers published weekly devoted to gardening? The *Gardener's Journal*, the *Gardener's Chronicle*, and the *Cottage Gardener*? Why, in my time few gardeners could read; and their masters took small delight either in Mount-ain's 'Gardener's Labyrinth' or in Dodoe's 'Herbal,' the chief books then to be found on our craft."

We would then point to the pile of monthlies on the same "pleasant gentle paradise-work;" and pass before him that three-pennyworth of sterling stuff, *The Midland Florist*. Its editor, Mr. Wood, himself a nurseryman and florist, as well as a man of taste and candour, secures to its pages such information as those who delight in gardens require, and takes care that the information is trustworthy. As an example, we would draw old Gerarde's attention to the essay on "The Caleolaria," by Mr. Woodhouse, in this month's Number, if we did not remember that it is a plant from South America—a quarter of the globe but just known in Gerarde's days—and that the flower itself is new even to us within these last twenty years. Then there is *The Florist*, published under the superintendence of Mr. Beck, of Isleworth, almost equally celebrated for the beauty of its pelargoniums, and of the vases of slate for gardens which he manufactures. The embellishments of each are excellent, and well worth the money charged for the entire Number. The contents are devoted to floriculture, and are usually valuable, and on topics of interest; take, for example, in the Number before us, "How to have roses in November," by Mr. Rivers, of Sawbridgeworth. Next would old Gerarde find upon our heap, *Paxton's Magazine of Gardening and Botany*, and he would certainly admire its lovely embellishments. Hooker's *Journal of Botany and Kew Garden Miscellany* would be charitably passed by without comment (for we must remember that Gerarde would be from a land where "the weary are at rest"); if the startling suggestion at p. 95 did not meet his eye—that the cedar of Lebanon and the deodar of the Himalayah are the same trees. "Ah!" the old botanist might then exclaim, "human knowledge is not all truth, any more than when I travelled for more certain information in the 16th century. We doubted then whether we knew the true cedar of the

Scriptures, and fresh doubts, I see, are yet accumulating. Dioscorides, Theophrastus, and Pliny, say it bore *berries*, but our cedar of Lebanon had *cones*; and now you bring forward another of still further varying form." Dr. Hooker's observation is, indeed, somewhat startling; and many a planter, many a purchaser of novelties, will go forth to look at his deodaras with very varied thoughts when he reads this—"I incline to the opinion that if the deodar of the Himalaya had been discovered in a locality nearer to the cedar of Lebanon, botanists would have considered it only a variety of that classical tree; and tracing, it as we can do, according to the testimony of travellers, from Mount Atlas in the west to the chain of Taurus and Altai on the east, we may fairly infer that the same species reaches the Himalaya range, and stretches as far as Kamaon."

We should especially draw our old visitant's attention to *The Botanic Garden*, edited by Mr. Maund; nor should the remark be omitted, that this, as well as *The Midland Florist*, is printed at a country town scarcely visitable in his day. It is decidedly one of the cheapest and most useful of our gardening publications, for the name really does not coincide with its contents: botany there is in it, but of horticulture much more—and of good horticulture too. The five coloured drawings of flowers and fruit in each Number are beautiful as well as correct. We think that we remember its commencement in 1826; and it has not merely maintained but increased its good character throughout.

Our length of days does not extend so far into the past as to enable us also to remember the birth-time of the next monthly old Gerarde would find upon our table, *Curtis's Botanical Magazine*, for this was commenced in 1787; and it could tell a curious tale, if able to write an obituary of its species born and deceased during its long career. We could ourselves tell some odd anecdotes of those who, in days gone by, have been its editors, but we have no space to spare for such reminiscences, for we have to attend most to what is useful. Even this venerable magazine shows symptoms of conformity to the utilitarian spirit of the age; for the publishers have found it desirable to associate with its accomplished botanical editor (Sir W. J. Hooker), a coadjutor, Mr. John Smith, who gives some brief observations on the culture of each species figured and described in its pages.

By no publications would the old garden-botanist of the Elizabethan age be more delighted than by *The Ladies Flower-Garden of Perennials and Annuals*, publishing in monthly Numbers, under the care of Mrs. Loudon. In no periodical of the present day is the beautiful and useful more happily blended. Lastly, Gerarde would come to a quarterly publication, *The Journal of the Horticultural Society of London*, of which he would probably inquire, in the

works of a modern authority, "Why are heavy articles mostly put here, and more useful articles elsewhere?" But the criticism would be too severe, for in the pages of this journal are to be found abundance of solid information relative to the higher branches of plant cultivation. The "Tables of Temperature for the use of Gardeners," by Mr. Thompson, is an example; yet we suggest that they would be much more useful if they contained the highest and the lowest monthly temperatures of each place, instead of the mean monthly temperatures. To tell us that the mean temperature of a country in January is 62°, is but an uncertain guide for us in cultivating a plant of which it is the birth-place; for to produce that average the highest temperature there might be 80°, and the lowest 44°; or those extremes might be 100° and 24°—conditions of temperature requiring the gardener to adopt very different modes of cultivation.

TRULY sorry are we to find that the mildew on the leaves of grape vines is still making great ravages east of London. Even in a vinery, the whole of the leaves of which were destroyed this year by the fumes of burning brimstone, the disease has reappeared on the new leaves. We shall have some remarks to make upon it next week.

THE FRUIT-GARDEN.

THE VINE IN GREENHOUSES.—We have now, during the last six months, dealt so far with the leading principles on which, as we conceive, most of our out-door operations are based, that the veriest tyro will doubtless be able to take a more sure footing than he could have done if left merely to prescription. Our aim has been (and will so continue) to give a reason, based on some thoroughly-recognised principle, for everything we recommend. We, therefore, hold no mysteries; the day for such has nearly passed away; somehow or other, there is not so great a relish for these things; for although, according to a celebrated writer on Taste, "obscurity is one source of the sublime," it is by no means the source from whence benefit will arise to the masses, who, in the main, are thirsting for knowledge of a practical, and, of course, available, character. Our purpose in thus reporting progress, is merely to point to an occasional digression—to give it a hard name—which we may henceforth have to make in our track, in order to accommodate a very numerous and very ardent class of amateur horticulturists. By our correspondence we see that we are charged with neglecting to treat on the vine in the amateur's greenhouse, who, perchance, may have his vines in pots, and these, together with his peach or his fig, in such simple structures. Now, as this class of our readers must be in some degree represented, and as our clever coadjutor, Mr. Beaton, has, in his dainty province, stepped aside occasionally from the window-sill to the little greenhouse, we do not see why we should not, in some degree, emulate Mr. Beaton's civilities;

more especially as we can in the course of our labours discuss, in due time, all the matters concerning the cottager and the amateur as to out-door matters, as they come to hand. We, therefore, hoping to make ourselves useful, proceed with

THE VINE IN THE GREENHOUSE.—It most frequently happens that the amateur who possesses but one, or, at the most, a couple of small houses, and who grows grapes, is constrained to grow geraniums, and, indeed, miscellaneous greenhouse plants beneath the shade of the vines. Although this is certainly not the way to do full justice to either the vines or the plants, it becomes imperative, and we do not deem it our province to raise objections on an unavoidable afflict, more especially as, by some nicety of management, grapes and plants of a tolerably respectable character may be grown together. We cannot now, for various reasons, "begin at the beginning," which would, indeed, be to show how houses should be constructed, and how borders should be made; this we can turn back upon in due time, that is, at some time, perhaps, more appropriate to the operation. We had better take up the subject according to the position the majority of our amateurs' vineries will be found in now, that is to say, the grapes either undergoing their first swelling, or shortly coming into flower.

Borders.—Much discussion has of late taken place about the propriety of applying artificial heat to vine borders, the roots being outside. Now, although we are small advocates for a mere theoretical settlement of the operations either of the garden or of the field, yet we are constrained to say that this is one of those questions which, abstractedly, might have been settled by mere theory. Follow nature, cries every one, both practicals and theorists; but how follow nature with a ground heat some twenty degrees below the atmospheric temperature in which the young shoots are growing? It is well known that in nature, over most temperate parts of the globe, a degree or two in favour of the average temperature of the earth over that of the atmosphere exists. However, our space is too precious to follow this branch of the argument farther; suffice it to say, that we have proved the immense benefit to be derived from the use of fermenting materials, applied to the borders over the roots, beyond all question; and we, therefore, beg to recommend it earnestly to all amateurs who can command the material. We will now give a few simple directions as a sort of calendar, promising to return to the main principles on which all successful vine-culture must be based, whenever time and space will permit.

Grapes Swelling.—By this we mean the first swelling; and as a warmer atmosphere is needed the moment they come into blossom, we will suppose that the cultivation of plants beneath them will have been divided into at least two lots; those which need, or will bear, heat, and those liable to draw if so treated. This operation should be sedulously attended to as soon as the vines begin to blossom; for it is well even to have a chance of setting foot on the stage, or pit, whilst performing the operation of thinning the bunches; and the plants, moreover, being set farther apart, they will not be so liable to "draw," or, in other words, to grow leggy and unsightly. Under these circumstances, the thinning out of the berry may be nicely completed, and this matter may be carried on in a progressive way. At the first thinning, those berries which seem wedged up in the interior of the bunches may be cut away, and, by the time this process is performed in an ordi-

nary sized greenhouse, those which were first operated on will require looking over again. The thinning of the berries may thus continue at intervals, accordingly as opportunities occur; but the final thinning should be accomplished before the berries are as large as very small peas. One thing we would urge: do not by any means overcrop your vines; one bunch of truly good grapes is fairly worth half-a-dozen inferior bunches. To set forth any precise number of bunches on a given vine as the standard, were indeed ridiculous. If the vines are healthy, we consider that whether trained on the long-rod system or on the spurring method, whether one vine occupy the whole house or six, that from 12 to 16 pounds of good grapes from each rather ought to satisfy any amateur with an ordinary greenhouse. Therefore, during the thinning process, if too many bunches develop themselves—allowing, we will say, one pound weight to a bunch on the average—remove all above that quantum. One pound per bunch may seem a very small affair to some persons, and so it is for exhibition purposes; this, at present, we are not writing for: like the cultivation of huge gooseberries for show, such require a *special* mode of culture. In our advice, we are taking into consideration the defective energies of many vines through badly constructed borders; and where such is known to be the case, our advice is, *rather crop below the mark* than above. It frequently happens that the bunches produce loose straggling shoulders; when such is the case, we say cut them away, provided the weight before quoted can be anticipated. We have frequently known whole bunches badly coloured through the extra appurtenance of these unwieldy shoulders, especially when there was a sluggish action of the root. It must be borne in mind that the colouring, and, of course, flavouring, process is mostly carried out through the instrumentality of the *three or four large leaves* which accompany the bunch, supposing the shoot to have been pinched or "stopped," according to usual practice, *one joint beyond the shoot*, or young bunch. Such leaves can only elaborate a given quantity of the cambium or true sap, that quantity being dependent on three things:—first, the size of the leaves and the capacity of their sap vessels; secondly, the extent of their exposure to the light; and, thirdly, the supply of sap from their root, in order to furnish abundant food for elaboration.

Temperature of the Greenhouse.—We come now to atmospheric temperature during the earlier stages. In remarking on this part of the subject, we will state both what amount they *must* have, and also what they *may* have; the first relating principally to artificial heat, and the last to solar heat. From the period of the young shoot expanding until the bunch is fairly developed, the average temperature should range from 55° at night to 65° by day; and from the latter period until the first swelling is completed, 60° by night and 70° by day *must* be secured. Now, as to what they *may* have. During the first-named stage, the thermometer may be allowed to reach, as the highest point, 85° any time between three o'clock and five p.m. on any given day. If, however, several days are continuously sunny, it is well not to persist in such a high temperature, but to be content with an extreme of 80°. The high temperature before quoted, if persisted in for many days, would assuredly cause a weak and watery growth; for the roots (unless artificially heated) would not, in a border of some 45° to 55°, be able to absorb food quickly enough to supply the copious elaboration or perspiration which

would necessarily take place. We do not conceive that there is the least occasion to advance the night-heat, by artificial means, at any time whatever above 60°. The vine, like all other plants, enjoys a sort of periodical nightly rest, which Nature has wisely provided, in most climates, by withdrawing the source of light and heat; and no elaboration or change of the juices, of any value to the system of the vine, can take place in darkness; although the heat be increased, such only tends to dissipate the energies of the tree. We deem it good culture to reduce the amount of heat as soon as the first swelling is completed. About five degrees of the day-heat may be given up. Indeed, this will necessarily ensue through a more liberal ventilation than was permitted during the first stage.

Ventilation.—No small share of the success in grape-growing depends on the mode of arating the house, or "giving air," as it is commonly termed. Motion, in the internal atmosphere of houses, is now universally admitted to have a beneficial effect; the only question is, how it should be produced? In a future paper we will offer some suggestions on this head; for the present we will merely offer a few cautions. In the first place, we say, bring your vines up somewhat hardy: that is to say, move them to some amount of air on every possible occasion, from the moment the young bud opens. It is, however, deemed necessary by most old practitioners, to keep them what is termed "close" during the first swelling; and we will not dispute that a somewhat larger berry may be produced by such means. This course is, however, too perilous for us to advise it to the amateur. We have frequently known vines treated on the *close system*. If two or three days occur together in which there arises no necessity for giving air, and they are kept close, they become tender as a matter of course, and more sensitive to every puff of wind; perhaps, on a succeeding day, there occurs a bright sun with a piercing wind, and air must be given, or the vines will burn; let it be considered, then, how the poor vines have been, what we must call, entrapped, under these circumstances. Whilst, however, we advocate a rather liberal ventilation, let it not be thought that we are anxious to admit either the chilling current or the boisterous gale. On the contrary, we advise that air must be given with very great caution at the *points of ingress* during the early spring months; indeed, if the front sashes open, and they can be graduated, an aperture of half an inch will suffice at front, on all but airy sunny days. The principal amount as to the egress of heated air must be at the back: here the ventilation may proceed at a liberal rate, especially at any lights where the vines are not quite at the back of the house.

Fires.—The management of the fires is no unimportant matter. These should be lighted daily, when needed, at two o'clock in the day, and they should be suffered to burn briskly until four, when the damper should be used, and the fire merely kept in through the night; placing as much fuel on at eight o'clock in the evening as will be totally consumed soon after midnight. If any remain the next morning, be sure to pull it clean out, and lay the fire ready for lighting again in the afternoon.

More mischief is occasioned by hot flues or pipes early in the morning on bright sunny days than by any other cause; for this reason, we say, always give a little back air *before seven o'clock in the morning*, be it ever so little: this purifies the atmosphere, and provides against any danger from burning.

In the course of another week or two we will endeavour to return to these subjects.

R. ERRINGTON.

THE FLOWER-GARDEN.

PLANTS FOR GROUPING IN MASSES.—These plants were alluded to in the last week's number, when we strongly recommended roses for that purpose; but as a garden entirely filled with roses would, though very beautiful, want variety, we shall this week give a list of plants eminently desirable, possessing richness of colour, abundance of bloom, and continuing a long time in flower—qualities of first-rate importance for (as they are commonly called) "bedding-out plants." As the season is fast approaching for planting the beds, our remarks will, we trust, be well timed, and enable our readers to procure suitable plants.

ARRANGEMENT OF COLOURS.—Plants for masses ought to be of full, decided colours: we shall describe them in the order, in our opinion, that they ought to be arranged. You may lay it down as a rule, that violent contrasts destroy each other. A white and a black, for instance, placed adjoining each other, are too violent a contrast to be pleasing, or in good taste. We would arrange them in something like the following order:—1, dark crimson; 2, scarlet; 3, orange or yellow; 4, rose or pink; 5 blue or purple; 6, lilac or bluish; 7, white.

1. **DARK CRIMSON.**—*Tall* flowers of this colour are *Lobelia atro-sanguinea*, *Antirrhinum Laurencianum*. *Dwarf*s of this colour are *Dianthus pumila*, *D. Hendersonii*; and of *Verbenas*, *Emperor of China* and *Victory*.

2. **SCARLET.**—*Tall*. *Salvia fulgens* (Glowing sage). *Dwarf*.—*Tom Thumb* geranium and *Cuphea platycentra*: this is a neat, pretty bedding-out plant, requiring a poorish soil, and a dry warm situation. Of *Verbenas*, *Robinson's Defiance* is an excellent scarlet variety.

3. **ORANGE OR YELLOW.**—*Tall* growers of these colours are very scarce. The African *Marygold* grows two feet; and, while it lasts, makes a glorious bed of golden-orange. *Dwarf*.—Of *Calceolarias*, *Amplexicaule* and *Kentish Hero* are both excellent; *Eschscholtzia californica*, and *Oenothera macrocarpa*.

4. **ROSE OR PINK.**—*Tall*. *Lythrum alatum superbum*. This is a beautiful plant, with abundance of bloom, and lasting a long time. It grows 2½ feet high. *Penstemon gentianoides roseum*. *Dwarf*.—*Geranium*, *Lucil rosea*. *Verbenas*, *Excelsa* and *Standard of Perfection*.

5. **BLUE AND PURPLE.**—*Tall*. *Salvia patens* (most beautiful), *Delphinium Barlowii* (splendid plant). *Dwarf*.—*Lobelia erinus compacta* (very pretty and neat), *Campanula carpatia*. *Verbena*, *Imperatrice Josephine*.

6. **LILAC OR BLUSH.**—*Tall*. *Phlox cordata*, *P. Thomsonii*, *Aster linifolius*, and *A. punctata*. These are late bloomers, and may succeed some of the more early kinds. It is rather a difficult colour to fill. In more *dwarf* growers there is *Clarkia pulchella*, but it is only an annual, yet deserving a bed with its beautiful rosy lilac flowers. There are also some varieties of German stocks, of low growth and suitable colours. Select accordingly. *Verbenas*, *Climax* and *Rosetta*.

7. **WHITE.**—*Tall*. Double white *Rockets* make a beautiful bed, as also does the double white *Snap-*

dragon, and double *Feverfew*. The last is a plant not half so well known as it deserves to be. *Dwarf*.—*Phlox omniflora*; and *Verbena*, *Mont Blanc*.

We had nearly forgotten to mention a very desirable bedding-out plant, of excellent qualities, which has lately been discovered; we mean a clove carnation called "Purity," of a clear white colour and dwarf habit—being also very fragrant, and a free flowerer. *Campanula carpatia alba* is also a good white long-lasting flower. For a very small bed, *Lobelia erinus compacta alba* is very proper, being of a dwarf habit, close growing, and free flowering. We have thus noticed rather briefly a few plants that answer well for planting in beds, each bed to contain only one kind, the intention of which is to show each off to the best advantage, by having such a mass of bloom. If the garden is large, and the beds numerous, *fuchsias* and *petunias* might be introduced, and more *verbenas*. If small, you may omit most of the tall ones mentioned above, only do not forget to have the *Salvia patens*, which is a fine plant of a rich azure blue.

Most of the things we have described are moderate in price, and easily procured in quantities of any respectable nurseryman. The prices run from 9s. to 12s. per dozen; the annuals, in packets, 3d. each.

ROSES FOR PLANTING IN GROUPS (continued).—In the last week's number a list of *China* and *Tea-scented* roses, proper for bedding purposes, were given. We shall continue the list till we have completed the series. There are several kinds in each class of roses suitable for this purpose. We advise our readers to wait till the whole of the divisions are gone through, and then make their choice. In the meantime, fix upon the beds you intend to plant roses in, and have the soil made rich, with the proper additions suitable for the rose.

The classes that we shall invite your attention to this time are the *Noisettes* and *Bourbons*; roses that are very beautiful. The *Bourbons* contain some of the finest roses blooming in autumn. They are free and constant bloomers, with fine foliage, bright colours, are very hardy, and of free growth. The *Noisettes* are fine roses, blooming in large clusters throughout the summer and autumn; some of them scarcely cease blooming for six months together. We shall, as in last week's paper, arrange them in colours, commencing with

NOISSETTES FOR BEDDING.

White.—*Aimee Vibert*, *Miss Glegg*; *yellow*.—*Lamarque*, *Solfatara*; *rose*.—*Luxembourg*; *dark crimson*.—*Pourpre de Tyr*, *Zobiede*.

BOURBONS FOR BEDDING.

White.—*Acidale*; *yellow*.—(there are no yellow *Bourbons*): *rose*.—*George Cuvier*, *Leveson Gower*; *red and scarlet*.—*Emile Courcier*; *crimson*.—*Souchet*, *Proserpine*; *dark crimson*.—*Paul Joseph*.

COTTAGE GARDENS.—Amidst all our cares and directions for gardens of larger dimensions we do not forget the garden of the cottager. We repeat, that all our directions are intended for the benefit of all. It is true our cottage friends have not the means and convenience of some of our readers; but, we say to this class of our friends, persevere. By industry and economy you may succeed in growing good flowers as well, nay, better, than some of your less energetic amateur neighbours. Grow roses, pinks, pansies, carnations, anemones, polyanthus, dahlias, nay, even tulips and ranunculus. The more you grow the better you will love them. How your heart gladdens when you see the flower you have tended, and cared for, and nursed, is at last opening its blossom in rich perfection. The dews of

heaven have nourished it; the light of the glorious sun has brought forth its bright tints and fragrance; and your own care and forethought have protected it from cold blasts and adverse frosts; and how delightful it is when all those concurring causes unite favourably to bring forth the beauties of your flower-garden! How thankful we ought to be that there are so many simple, enjoyable pleasures for all classes of mankind—the rich and the poor—to all, the real pleasure and delight of enjoying a garden is open. Cultivate, then, your flowers with all your heart; and let no pleasures, falsely so called, draw you away from the delights a well ordered and tended garden will afford.

FLORISTS' FLOWERS.

ANEMONES.—The double ones will now be coming into flower. To keep them in great perfection as long as possible shelter them from the sun and wet. Should the weather be dry, give a good steeping of water frequently, without wetting the flowers. Stir the earth, also, at times, or it will crack, and let the moisture out and the drought in, besides injuring the roots.

DAHLIAS.—Dried roots may now be planted in the borders. Open the place where you intend to plant a root, about a foot square and eight inches deep; then put in the hole a good spadeful of rotten manure; mix in well the soil, and then put in the root, covering it about two inches. By doing this, your dahlias will grow strong and flower fine.

CUTTINGS OF DAHLIAS, as soon as they are rooted, should be potted off singly into small pots, and kept in a warm frame or pit until thoroughly established. Such as have been potted some time may be placed in a cooler frame and have plenty of air given them to harden them, so as to be able, as soon as possible, to set them out of doors for a time previously to planting.

CUTTINGS of *verbenas*, *fuchsias*, *petunias*, and other plants, intended to furnish beds, or to plant out amongst other flowers, should be treated similarly to the dahlia cuttings, always bearing in mind not to be in a hurry. Too much haste is often loss of speed. If the cuttings are exposed without proper and gradual preparation, they will receive such a check as will take weeks, perhaps months, to recover.

T. APPLEBY.

GREENHOUSE AND WINDOW GARDENING.

GREENHOUSE CLIMBERS.—The first climbing-plant that should occupy the front border of a cool conservatory or greenhouse—whether belonging to Queen Victoria or to Mr. John Smith—is, unquestionably, the Sweet-scented Mandevilla (*Mandevilla suaveolens*); one of the most beautiful things we possess, and as easily managed as any plant I know. It is a recent introduction from Bolivia; and named by Dr. Lindley in compliment to Mr. Mandeville, who was lately our consul or minister at Buenos Ayres; from whence and from the adjoining countries he sent us many fine plants. Its second name is very appropriate, and means sweet-scented. As being from Bolivia, it must be a rank republican; and, like other good people of that stamp, is not very particular how it lives. Any common garden soil, therefore, will do

for it; but on no account will it put up with close confinement, and any artificial heat during its growing season is altogether repugnant to its nature. It will even do little good in a pot. It is true you may get a few dozens of flowers occasionally from one in a large pot; but give him freedom to spread his roots far and wide, and it will produce them by the thousand from July to the end of October. One against the conservatory wall here produced 17,000 flowers last autumn, and it never misses. Each flower is large, sweet-scented, and as white as the poet's newly-drifted snow. There was almost a general disappointment respecting this charming plant on its first introduction, caused by people growing it in the stove. This often happens when we receive plants from a country like Bolivia, having a great range of temperature, unless the particular locality is stated. Bolivia, as is well-known, comes in between Chili (the *calcolaria* country) and Peru, and occupies more than 200 miles of that desolate coast where rain never falls; and is as large as England, Ireland, and Scotland, with France, put together. It is, also, the highest inhabited country on the earth, and is almost as if it were out of the world; so that we know very little of it than as being the great source of the gold and silver mines of Peru, before the subversion of the Spanish authority in South America; and, within the last twenty years, it has been clearly proved that the highest portion of the great Andes chain is in Bolivia; the highest point being more than 3,000 feet higher than Chimborazo, which was considered the highest point of the Andes by Humboldt. Consequently, this Bolivia must exhibit every degree of heat, from that of the tropics down to that of regions of eternal snow; and our beautiful mandeville would indicate a climate analogous to that of central Italy, for when the shoots are three or four years old they will stand 10 degrees of frost with little injury. If it could be protected a few years on an open wall out of doors, so that its roots were once fairly established in a dry border, it might be allowed to be cut down every winter by the frost; or, what would be better, to be cut close to the surface of the ground with the knife early in November, and a bushel or two of dry coal-ashes placed over the roots. It would spring up again in May like the dahlia, and would flower in the autumn magnificently. Any one who has managed the coral-tree (*Erythrina crista-galli*) out of doors, will find the same treatment applicable for the mandeville. In a cool greenhouse it grows with great freedom, and the long shoots are as pliable as whipcord, so that they may be trained in any direction. It does not keep green in winter, therefore will not obstruct the light at that season; and, as it blooms on the current season's growth, like the grape vine, it may be pruned in the autumn as close as any vine; that is, to within a joint or two of the old wood.

This mandeville is also peculiarly applicable for a new mode of furnishing the outside front of a greenhouse with choice or rather the choicest exotic climbers in summer, which I would recommend with the utmost confidence to every one who has a greenhouse or domestic conservatory, having adopted the practice for many years with the best results. The plan is this:—as soon as the front climbers inside a greenhouse are fully established, when they are dressed in the spring, I would reserve one-half of their main leading shoots, only tying them up in a temporary manner; and when the May frosts were over, I would draw them outside, either at the top or bottom of the front lights, and train them in every available space, up or down, or right and left; so that

the whole outside front may be covered, and parts of the dwelling-house too, when the conservatory is attached to it. The effect of all this, after midsummer and all through the autumn, no one can believe who has not seen something of the sort tried. The usual way of furnishing such places is by planting half-hardy things out of pots late in May; such, for instance, as *Maurandias*, *Eccecarpus*, *Lophospermum*, the old blue and various coloured *convolvulus*, and many others of that stamp; but, unless these are good old-established plants, the best part of the season is over before they make any display worth speaking of. But how are the shoots of the mandevilla to be got right through the glass? you inquire. How? indeed! Much easier than planting 19 trees in nine straight rows and nine trees in every row (for I was foolish enough to try at that for a whole evening, but I cannot make it out.) One way of doing it is, by taking out one of the bottom panes of the roof-sash, just over where the climber is planted; and when the climber is out and trained, cut off a corner of the pane and it will fit in again, the shoot lying under the broken corner; and if there is more space open than is required for the shoot, wrap a piece of moss round the shoot so as to fill up the hole. This is necessary, otherwise, in rainy weather, the water would pass in a stream to the inside border, or, perhaps, into pots. If any of the front lights slide horizontally, nothing could be easier than pushing a light to one side, and, after taking out the climber, the light would shut all but an inch or so, and that is not too much air for the house all the summer. Where a large pane is to be taken out for this purpose, fix on one of the lowest; and get a glazier to undo it, and put it by for the summer, using a pane of zinc in its place, with a hole at one corner; or, indeed, in any other way that may occur to yourself as being less objectionable; only let me hear in the autumn how you approve of this plan, or if you have hit on a better one, as local circumstances will determine these things better than absolute rules, however carefully put together.

After the Mandevilla, I would recommend a passion-flower, but not the common blue one, because, with the assistance of a thatch of some sort, the common lilac passion-flower may be grown out of doors as far north as Inverness; and I have seen it farther north against garden walls. There are three cross-bred seedling passion-flowers nearly as hardy as the blue, or rather gray one; one with a pale pinkish flower, another with purplish bloom, but the best of them is one called *Herbert's passion-flower*, and the highest coloured one of all the hardy greenhouse kinds: this is the one I recommend; and if the snug conservatory is placed against any part of the dwelling-house, I would have this passion-flower planted as near the dwelling-house as I could, in order to have a great part of it passed to the outside, to be trained over the south or south-west side of the house. You can do anything with a good strong passion-flower in the way of training, and in a few years you may have it of a great length, so as to cover a large space of frontage; and as it flowers on the current year's wood—that is, it flowers on the young wood as fast as it is formed—you may cut it in very close to the old wood in the autumn before it is brought back under glass, so as to take up very little room in winter; and you need not leave a single shoot on it at pruning time.

Now, by making this use of your climbers, you can grow double the usual quantity; and the more slender and delicate kinds may be kept always inside; but for these, and many others, we shall

have plenty of time by-and-by to arrange and talk about, for, if I occupy too much room with these fine glass houses, my *windowers* will think I am looking too high in the world, and neglecting them in proportion; but I have a nice suggestion to-day for window gardening, which is also suited to a palace, and, like an egg, is just as good in the one as in the other. It is, to make *Tree mignonette*. This is a very old plan of having mignonette, and within the last few years has been revived again with great spirit and success; and depend upon it, if you were to be successful in rearing these miniature trees, you would get a ready sale for them, and thus provide the needful wherewith to buy pots, seeds, and some choice plants. There is no difficulty at all about the thing, only the time it takes; and most gardeners have really too much to do to attend to this branch properly, and it will hardly pay nurserymen to attempt it; so that a cottager has nothing to fear in competition in this branch. About the end of April is the best time to sow seeds for this purpose; and as the little tree of mignonette will be expected to last in good health for half a dozen years at least, let us lay a good foundation to begin with. A good rich compost, such as one would select for a favourite geranium, is just the thing for these little pets; or say rich mellow loam and one-third very rotten cow-dung, with a little sand; and to keep this from getting too close, a handful of dry lime mortar should be added to each pot of the size of six inches, and so in proportion for larger or smaller pots: the mortar to be in lumps of the size of peas, and the dust got out of it. Bones, charcoal, or even powdered crocks, would answer the same purpose, only the mignonette is so much sweeter from the lime rubbish or dry mortar. Cow-dung being very liable to turn sour, the mortar is a better corrector of this than even the charcoal; therefore, on the whole, I would prefer the mortar. Now take as many 3-inch pots as you want plants; drain them with pieces of mortar, and over that a little of the roughest of your compost; no moss at this stage; fill up nearly level with the top of the pot, and place three seeds in the very middle of each pot, and nine or ten seeds all over the surface; if you just cover them with earth, it is enough, and press them down very tight. Water them, and put them up in the window; and if the seeds are good, they will be up in less than ten days. The moment you see them, give them abundance of air; no forcing, recollect, for the more haste less speed with them. When the day is at all fine, put them outside the window from ten to three in the afternoon. They will not stand much water; a gentle shower with a rose would suit them very well, and the best time to give it them is in the morning when you turn them outside, as they will have time to drain and dry properly before you take them in for the night. If the three seeds in the centre come up, it is a sign of success, and the weakest of the three must be pulled out as soon as you can get hold of it; the rest will also be thinned one-half. The reason for sowing so many seeds in one pot, and for thus thinning them out afterwards, is to make sure of one good plant: if the middle one turns out to be so, that must be selected; but if not, you must choose the strongest and most promising from among the rest; yet be in no great hurry to pull them all out but one; as long as three or four have elbow room, you may as well leave them, and in case of any accident there will still be four chances to one. When you have fixed on the one that is to form the future tree—the pride of the village, and the wonder of your best and

next door neighbours—place a neat little stick down by the side of it: this stick must be a foot long, and pushed right down to the bottom of the pot. When the plant is two inches long, you will tie it loosely to this stick with a piece of worsted thread, which is the best thing in the world to tie plants with. Keep tying it as regularly as it grows, and when it reaches the top of the stick give it a larger one, that is, if you wish a long stem. Some people grow them up to three, or even four, feet and more; but you will have time enough to make up your mind as to the height you would like it to be. Suppose we say only a foot high for a couple of them, as they must all go in pairs; 18 inches for the next couple, and two feet for a third lot; you would then be better able to judge which size would suit your window best; and all that I think necessary to say as to future management is, that as soon and as often as side branches issue forth from the stem of your tree, you must stop them at the second joint. Some people, who do not know the value of leaves, cut off the side shoots close to the stem at once; but the substance of the stems and trunks of all trees, and mignonette trees among the rest, is first formed by the leaves; and by cutting out all the leaves in that fashion the stems of your trees will grow in the form of a fiddle-stick, or be the same thickness all the way up; and if you grow it that way, no matter how fine the head may be, the stem will only be the ghost of a trunk after all; and no lady of taste would thank you for a dozen of them. No! you must leave as many leaves as you can the first year, and the stems of your trees ought to look, by all things in the world, as feathery as the legs of a bantam fowl. In the second year you will cut off more than the half of these side spurs, beginning at the bottom, and only taking off a pair at a time, and in ten days or a fortnight another couple, and so on progressively. Nothing is worse in principle than to strip off many leaves at one time.

I have said nothing about the flowers yet, but there must be no flowers the first season, at least as long as there are some out in the borders. After the middle of October you may let your trees bloom all the winter, but before that nip them off as fast as they appear. When the first little pots are full of roots, say about midsummer, shift the plants into 5-inch pots, which is the next largest size; and if they have done well they may want another shift by the end of July, but never shift them after the middle of August, because, if we should have a cold autumn, they would not fill the pots with strong healthy roots; and unless the pots are full of vigorous roots before winter, the whole forest would tumble about your ears before the winter was out.

This is also a good time to sow the *Blue convolvulus*, and the Canary bird plant (*Tropæolum canariensis*), two of the best summer climbers for the outside of a window. You may sow them exactly like the mignonette, in very small pots; and when they are well up you can put them either into larger pots, or nice boxes, and train them up on strings in any fancy way you may choose. I once saw the whole front of a house meshed over with twine like a net; the meshes being about 10 inches square, and the canary plant was trained over the whole of the twine as regularly as lace-work, and the whole thing looked remarkably well. But the best specimen of cottage gardening I ever saw, and perhaps the best in Europe, is at one of the gate lodges in Hyde Park, the Kensington lodge, and all done with this canary plant every season for a long time; but as I shall have occasion to pass that way soon, I shall defer

any description of the plan of training adopted by the gate keeper until I see it once more, lest my memory may prove treacherous; meantime, seeds of this annual should be sown at once, three or four in small pots, and treated exactly like sweet-peas. After they are up and out of danger, one only is to be retained in each pot, and when the pot is quite full of roots the ball may be turned at once into the flowering pot or box. Since writing the above it occurred to me that the best way would be to send this Number of THE COTTAGE GARDENER to the gate-keeper as above, and to request him to be so kind as to communicate his mode of managing this climber; for I am quite satisfied there is no gardener in this country who can manage it better. He need be under no apprehension about his letter not being fine enough to appear in print, as we all write here in the most simple and plain style, in order to make our delightful tasks easily understood by any one, if he or she can only spell the words. Speaking of plain letters, reminds me of a memorandum I intended to send to the editor about letters on the subject of "Answers to Correspondents," some of which pass through my hands. Those from ladies I can read easily enough, with few exceptions; also from mechanics, small tradespeople, and office clerks; but your dashing writers have no mercy on poor old eyes, and I am sorely puzzled at hieroglyphics. "Withhold not good from them to whom it is due, when it is in the power of thine hand to do it."

D. BEATON.

THE KITCHEN-GARDEN.

Cauliflowers.—In planting out successional crops of this useful vegetable, it is a good plan at the present time, and throughout the summer months, to dip the roots and stems up to the collar of the plants in a mixture of soot and clay of the consistency of thick paint, to prevent the attacks of the grub, so prevalent in many localities. This had better be done just before replanting them. If soapsuds can be procured for mixing the soot and clay, the effect will be more beneficial than if water alone is used for the purpose. The same system should be adopted also when planting out successions of either *colecasts* or *cabbage plants*. To obtain quickly crisp, fine-flavoured, healthy vegetables, liquid manure should be very freely applied. *Cabbages, cauliflowers*, and, indeed, the whole of the Brassica family, are fond of a moderate portion of salt and soot, either mixed with the liquid brewer or that collected from the cess-pool. Mark now, for seed-saving, a few of the earliest and best shaped of the coming-in cabbages. If such have been all cut, then, as soon as their stumps have again produced sprouts, to prevent disappointment, let these stumps be removed to some spare but not overshadowed corner, to produce seeds.

CARDOONS.—The first sowing may now be made. Insert the seed in rows four or five feet apart, on soil that has been previously well trenched and manured. If the soil has also been ridged and forked, so as to have become well pulverized, shallow trenches may be formed for sowing the seed, similar to those made for celery.

EARLY CELERY which may have been pricked out on slight hot-beds, in frames, or potted, may now be put out in trenches, made on well pulverized soil.

DWARF KIDNEY BEANS and RUNNERS, of the same kind, should now be sown in full crops. It is a

good plan either to transplant or sow either of those varieties in shallow trenches, which afford some shelter to the young plants, so necessary at their first starting; and it is a convenience, as has been before stated, for any temporary covering that may be needed on cold nights, for watering in dry weather, and they are also a protection from cutting winds.

ROUTINE MANAGEMENT.—Sow successions of *cucumbers*, *melons*, and *vegetable marrow*. Reduce the covering used over frames containing early crops of these. Apply tepid manure water to the plants having fruit now freely swelling. Prepare for ridging out plants of these crops in the open ground, to be protected by hand-lights, oiled paper frames, or other covering.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

ALLOTMENT GARDENING FOR MAY.

FRUIT-TREE BORDERS.—As our remarks are intended to apply to the ordinary cottage garden, as well as to field gardening, we must take some notice occasionally of the fruit borders, or marginal strips; for these may be turned to account occasionally; as the holding a plot of ground is such an immense benefit (one denied to the mechanic in smoky towns), that not an inch should be either lost or neglected.

When gardens are first enclosed, a good many useful little things may be obtained from the fruit borders, provided they be plants which bear shallow culture; for no deep digging will be pursued here through our recommendation. We may as well say at once, that six inches is the very extreme depth to which any culture may be permitted to reach; indeed, this is more than we should practice. The kinds we most recommend for border culture are the following:—Spinach, cabbage lettuces, York or Matchless cabbages, radishes, kidney beans, shallots, parsley, turnips (the Dutch), kohlrabi, and most of the herbs, at least those which do not spawn too much at the root.

Provided the fruit borders are about six feet in width, one drill and an edging of any kind will be a profitable course during the first three or four years; in which case the drills may be drawn about two feet, or nearly so, from the tree stems, from end to end; and, instead of digging any deeper than here suggested, we advise that a little old manure be put in the drills; this we call "hiring a crop," for the cropping is not to be allowed to rob the border, but merely to hold a temporary situation there. Whilst, therefore, the trees are young, some of the larger and grosser vegetables may hold a situation there, such as the York cabbages, kohlrabi, &c., and these, for a short period, may be placed in double drills. Some rotation, however, will be necessary even here; and the drills of one year may be exchanged for a broadcast crop the next, for which we know of nothing better than the Dutch turnip, spinach, or cabbage lettuces. We grow quantities yearly of the Dutch turnip, on fruit borders, by merely hoeing the seed in. The turnips, the spinach, and the lettuces, will all be wanted for the cow or pig: of the latter two it is impossible to get too much; and the spinach, when run to blossom, and half a yard high, is a very excellent thing to give cows which have become over-bated by other diet, and which may, in general, be

known by the cow eating the very soil from the hedge banks; this over-heating is apt to produce the red or black water.

As the trees extend, and the border becomes much shaded, it is in vain to crop much. In such cases the Dutch turnip may be sown in the first week of March; but whilst the trees are young we would take a crop of the Hammersmith lettuce off in May, which had been sown in the end of August, and then follow in the same season with Dutch turnips. We do not wish to confine the cottager to these crops; we merely wish to show what may be accomplished by a severe economy, accompanied by sound information as to the habits of the vegetables in question.

MANGOLD WURTZEL.—We must now stay to inquire whether this useful root is sown; our's has been sown a fortnight. If not, let it be sown instantly, according to former advice. The young plant will want a thorough weeding as soon as above ground, and the next process will be what is termed "singling them out;" that is, removing one where two come up side by side. Before these two processes, however, the hoe should be plied between the drills; this enables the weeders and singlers to see their work plainer.

SWEDISH TURNIPS.—By referring to our last allotment directions, p. 301, it will be seen that we advise these to be sown a fortnight later than the mangold, on account of their liability to mildew. The first fortnight in May is a very good time, and we hope our cottage friends have got their Swede portion of the allotment in a forward state of culture already. The Scotch have a saying that "the midden is the mither o' the meal chest,"* and if this hold good with our grain crops, it is trebly true of our root crops, which make thereby a famous preparation in our fields for wheat; as, although quality is requisite for this valuable grain, fresh manures, which the turnip thrives on, would run the wheat into straw too much. See, therefore, that the root crops are well manured, for no manure must be used for the potatoes which are planned to succeed them in 1850.

Take care to raise the drills by some means; this is easily accomplished on ordinary flat garden ground, if in good tilt, by drawing a small drill on each side of a garden line, and close to it; this will leave a raised mound, or ridge, in the centre, in which the seeds may be dibbled. If the soil is not very good, it is advisable to introduce a mixture of some stimulating manures, in the drill manner.

Guano.—Real good Peruvian guano, we fear, may be thought out of the cottager's way. Such guano, however, it should be remembered, can be purchased for very little more than a penny per pound. We are persuaded that it is quite within the cottager's reach, and peculiarly efficient under a proper course of management. Indeed, nothing else can accomplish what we would desire so well, at so small an outlay. About twenty pounds would be enough to form the basis of a mixture, which will be found to work wonders for the young plant. Such is applicable to most of our crops; but the Swede is so liable to the fly and other mishaps, that anything which will develop the plant rapidly is particularly worthy of attention. Let us, nevertheless, add a caution concerning its use: it must never be put into narrow drills in its raw state. Any old mellow vegetable soil, thoroughly decayed leaves, very old tan, or any charred weeds, or other matter, is capital to mix with it; and, if nothing else is at hand, some cind and spent sawdust may be used. A couple of barrowfuls of such, spread over the floor, with twenty pounds of

* In English, "The dung-heap is the mother of the flour bin."

the guano added, and the sweepings of a chimney, all *thoroughly blended*, will make one of the most fertilizing drill manures possible; and, withal, exceedingly economical, for the whole will not exceed a half-crown. This, then, should be sown by hand in a drill after the seed is deposited, and then slightly soiled over. We now leave, for the present, two of the best root crops, for the cottager, next to potatoes; and having disposed of divisions Nos. 1 and 2, in the diagram p. 181, we will proceed to look over Nos. 3 and 4, and advise some subordinate affairs.

HORN CARROT.—We have before strongly urged the culture of this on the cottager. If, however, he prefers the larger sorts, he must get them sown directly. They were intended for division No. 2 in drills, but it is quite likely that division will be full. If so, a bed in No. 3 must be seized on, for carrots must be had. The same kind of dressing as recommended for the Swedes will answer with these; for, above all our crops, the carrot most needs quick growth whilst young; for not one of our vegetables is so slender a habit, and a single slug will devour some hundreds in one night. We have before said that the Horn carrot must be sown thick, and pulled or thinned out almost daily for use, when as thick as the thumb, leaving enough for a full crop afterwards.

LETTUCES.—As we have set out one division for miscellaneous articles, we hope to persuade the cottager to grow lettuces all the summer, on some portion or other. A good bed should be sown immediately, well manured; the manure not dug in too deep, and of a rotten character. It is useless planting or sowing them in poor soil, and no crop will more amply repay the value of the manure than this. The cultivation of summer and autumn lettuces should, in our opinion, form part of every cottager's pig feeding system. They are exceedingly nutritious, and all swine devour them greedily. They may be suffered to shoot up to seed, and it is astonishing what a bulk of rich material a bed of a dozen yards in length will yield in this state.

SPINACH is another useful summer crop for pigs; the cow will also eat it greedily. Any spare corner will suit it, and it will succeed best in summer in the shade of other crops, provided the ground is manured.

RED CABBAGES.—If these have not been planted, it is not yet too late, if a few spring-sown ones can be procured. No cottier should be without a score for pickling purposes.

As connected with pickles, we may here name the *nasturtium*. This is an exceedingly useful and wholesome pickle, and we should like to see the time when every cottager's wife possessed annually two large jars of pickled cabbage, one jar of nasturtiums, and a couple of pickled onions: these articles would add relish to many a frugal meal through the ensuing season. Nasturtiums should be sown immediately, first soaking them in warm water for six hours. They must be put on the poorest soil in the garden, and may be staked like pease, or carried up string, or even sown at the foot of gawky or naked fruit trees, and carried up their stems. There should always be a few near the door porch, and near road sides. Nothing gives more summer gaiety to the cottage, than runners, nasturtiums, hollyhocks, and sunflowers.*

RUNNERS.—These we adverted to at p. 302, and we hope our cottage readers will be sure to provide a few. Let them remember that it is quite possible for the potato some season to fail worse than it has ever done: well would it be, in such a day, for those who had gradually weaned themselves from the constant use of the potato, by acquiring a relish for the various articles here pointed out.

LEEEKS.—Another most useful cottage vegetable is the leek. It is not generally known that the leek when highly cultivated, and blanched by soiling up like celery, makes a most delightful dish, well boiled, and a little butter added to it. It has all the mellow pulpiness of the sea-kale, and is much richer flavoured. Early plants, planted immediately in rich soil, will make large plants by the autumn, and will keep for many months.

PEAS.—Let these be well staked, above all things, for it renders them much more profitable; although we have known capital crops grown on the ground in fresh unmanured soil, especially of the Prussian kind.

BROAD BEANS.—Do not forget our advice about soiling them up, for fear of wind.

GREENS, BROCOLIS, &c.—Of course the seed-bed recommended at p. 301 has been secured in the miscellaneous division No. 4; and if so, the green kale, savoys, Brussels sprouts, thousand-headed cabbage (for the cow), &c., will now be nice young plants, almost coming into their second leaf. If, however, any of these have missed coming, sow again directly, sowing the seed in warm water for six hours previously. We named a few *brocolis* of the late kinds before; it is now time to sow the autumn and winter *brocolis*. The best for the cottager are Hammond's cape, Snow's winter white, and the Walchren. A small patch of each will do. It is not unlikely that he will be able to buy a few of some gardener, and this will save him both ground and labour.

KIDNEY BEANS.—We here mean the dwarf kinds; we do not, however, recommend them to the cottager, unless in our most southern counties, for they are neither so profitable nor so ornamental as the runner. If some should be required, we advise the negro variety, and that they should occupy a row on some narrow border fully exposed to the sun.

CUCUMBERS.—We should like to see every cottager enjoying a cucumber-bed; and if he has a little manure left, which is too fresh for digging in, it may as well be employed this way as lay bleaching with the sun; the trimmings of ditch sides, or any rubbishy materials, leaves, fern, &c., may be mixed with the mass. A trench must be formed in some well sheltered nook; it should be dug out a spade's depth and three feet wide; the warm materials will thus be a foot below the level, and may be piled half

to make the cheap and excellent vinegar I have now used for some years, and find it as good for every purpose, and that it keeps pickles as crisp and well as the vinegar I used to buy at tennepence a quart, the acid, also, is more pure and delicate. As the time for making it now approaches, I send you the recipe that you may give it a place in one of the next numbers of *THE COTTAGE GARDENER*, if you think it will be useful. The vinegar does not cost more than eightpence a gallon when the cowslips are gathered by the family, but the small quantity required would only cost a trifle if a child were employed to gather them. Kept in a warm place, the vinegar will be ready in six months. I prefer, however, leaving at least part in the cask till the season arrives for making again, as the cask then only requires washing out, and there is no danger of its contracting any disagreeable taste.

COWSLIP VINEGAR.—To four gallons of water, with the chill just taken off, add six pounds of brown sugar and half a peck of cowslips, flowers and stalks together; put all into a cask, with three table-spoonful of yeast; lay a piece of glass or slate over the bung-hole, and set it in a warm place till the vinegar turns sour, when the bung may be fastened down. A quarter of an ounce of gelatine or isinglass will make it clear sooner.

* In connexion with this subject, we may insert this note from a lady at Congleton, and we may add, from a good authority, that the vinegar made according to this receipt is excellent:—"In *THE COTTAGE GARDENER*, No. 26, it is regretted that 'the cottagers of England do not pay a little more attention to pickles, of which several kinds are within their reach.' I think it might be useful to them to know how

a yard above it; the whole then covered with the soil thrown out. Glasses, with the cottager, are out of the question; a few sticks, however, may be put round and over them, and a mat, or any old cloths or sacks, thrown over them at night for a while. If he can get a strong plant or two of the ridge cucumber from some gardener, it will be well to plant that at one end; for general purposes, however, we think the ordinary gherkin should be his aim: here he will be less likely to fail.

It will soon be time to make a trench for *celery*, for the cottager should grow it as early as he can. Half-a-hundred plants will be as many as he ought to indulge in, for this is a sheer luxury; they moreover require much manure.

PARSLEY.—We hope plenty of this useful herb has been sown; if not, let some be put in immediately; perhaps as an edging to some compartment.

SEED BEDS.—Under this head will come the various greens necessary, not as principal crops, but in order to supply any gaps which may occur during the season. The first thing we would name is the *Suede*. A small bed should be sown at all times, in case the drill-sown crops should fail. Some, indeed, prefer transplanting as a system, but we do not. These should be sown a week or more later than those in the drills; for it is better for the drills to wait for the plants than the plants to wait for the drills. We have known, in numberless instances, great stalky overgrown plants transplanted in a dry time, after potato crops; and they have always proved a partial failure. Such plants, too, require severe topping; and our rustics generally cut every vestige of leaf off, leaving nothing but a few bare sticks, with a prematurely formed bulb at the end: this is carrying abuse to its very limits. Swedes in the seed-bed should have the scythe passed lightly over them as soon as they become rather gross, merely topping the leaves. This checks their growth slightly, and, by admitting more light and air, prepares the plant for the vicissitudes it may have to undergo. *Lettuces*.—A good bed may be sown directly; no more need be sown until the beginning of July, or they run too fast to seed. *Cabbages*.—We have before advised the cultivation of the dwarf kinds, the spring-sown ones are now up. No more need be sown until the second week in June. Sow a good breadth then, and a few more at the end of the month.

GENERAL MAXIMS OF CULTURE.—We need scarcely say, do not suffer weeds to choke the young crops. Endeavour to pick the weather for this operation. One hour's hoeing in dry weather is worth a whole day's work of the kind in damp weather. If the season continues damp, hand-weeding must, in many cases, be substituted for the hoe; and when the hoe is used, the weeds should lay a day to slay, and then be distributed with an iron rake. Above all, do not allow any weeds to seed. Take care to draw plenty of soil to the stems of all greens, cabbages, &c.; endeavour to cover most of the stems. Use deep culture in the centre between all drill crops, but apply the hoe with caution near their stems. The tap-rooted crops will, however, be an exception: we consider deep hoeing near to their stems beneficial when the plant has become strong and the thinning out is completed; such will destroy a few of the side forked fibres, and induce them to go deeper in quest of food.

PLANTS DESERVING CULTIVATION.

INTERMEDIATE ERIOSTEMON (*Eriostemon intermedium*).—This plant is absurdly named "interme-

diate," because equally resembling two other species of the same genus. It is a native of New South Wales, and is a beautiful plant in the greenhouse during the winter and early spring months. Its flowers are white, tinged with pink, and very abundant. It requires to be grown in a well-drained soil of turfy peat, mixed with a little sand. Watering must be carefully attended to in the summer; and to make it bushy, the leading shoots occasionally shortened. "It may be propagated by cuttings under a bell-glass in bottom-heat, or by grafting it on stocks of *Correa alba*."—(*Botanical Mag.*, tab. 1439.)

LOVELY GOMPHOLBIUM AND SHAGGY GOMPHOLBIUM (*G. venustum* and *G. hirsutum*) are both natives of the Swan River Settlement, flowering for the first time respectively in this country in the years 1845 and 1847, at the nursery of Messrs. Knight and Perry, King's-road, Chelsea. The first is purple-flowered, and the second yellow. The first is a twiner, but the second shrubby. They both require good drainage, and a soil composed of equal parts sandy heath mould and light loam, with the addition of a little sand.—(*Paxton's Mag. of Gardening and Botany*.)

CHOICE KENNEDYA (*Kennedya eximia*).—This is a greenhouse climbing plant from the Swan River. It flowered here for the first time in 1846, at Messrs. Knight and Perry's. The flowers are crimson, and open in May. "A light loamy soil, mixed with an equal quantity of heath mould and a portion of sand; frequent potting to prevent the roots becoming matted, and good drainage, are the three important requisites." It is increased by cuttings when the wood of the shoots is half ripe. Plant these in sand, with a little bottom heat.—(*Ibid.*)

DENSELY FLOWERING LOBELIA (*Lobelia densiflora*). This is hardly, or nearly so. Flowers bright blue, appearing in October. Bloomed in 1848 by Messrs. Knight and Perry. It is easily propagated by dividing the roots, and will thrive in a light rich soil.—(*Ibid.*)

THE BEE-KEEPER'S CALENDAR.—MAY.

By J. H. Paine, Esq., Author of "The Bee-Keeper's Guide."

THE most interesting as well as the most active month in the apianian's calendar has now commenced; food for his little favourites abounds in every direction, and no fear need now be entertained of famine. The population of the hives will have increased considerably, and drones, by this time, are making their appearance, which proves that the stocks are in a healthy and vigorous state, and should be a subject of congratulation to every bee-keeper. "Early drones early swarms" is a maxim the truth of which every experienced apianian is well acquainted with. To my very great surprise I saw drones from one of my strongest hives on the 17th of March, (and in considerable number every fine day since that time,) five weeks earlier than I ever before observed them. In 1825, they made their appearance as early as the 25th of April, which until this year was the earliest time of my ever having seen them. The thermometer stood here, on the 17th of March, at 60°.

To those persons who are managing their bees upon the depriving system, the time will now have arrived for supplying each stock with a small hive, box, or bell-glass; and should the season prove a favourable one, the supply also of a second may be found necessary before the end of the month.

Method of placing the bell-glass, box, or small hive upon the Improved Cottage Hive.—Take the moveable

piece of straw-work from the top of the hive (see p. 289, Vol. I.), and place upon it the adapting board (see p. 305); then put the bell-glass, small hive, or box (see p. 305) upon this adapter, and cover the whole with a milk-pan to defend them from wet. Should a bell-glass be preferred, it must be covered with something that will effectually exclude light. A cover of straw is, perhaps, the best. It is very desirable to fix a piece of clean comb inside the glass, and this may very easily be done by warming the perforated zinc tube, which is sold with the glasses, and then pressing the piece of comb upon it. Should the comb reach from the top to the bottom of the glass, so much the better; for the bees will then begin to work upon it immediately.

Those persons whose bees are now in common straw hives may, if they please, commence with the above system at once. Let them, in the middle of a fine clear day, with a strong sharp knife, cut out from the top of the hive a piece of the straw-work four inches in diameter; and then place over the opening the adapting board, &c., as directed above. Should the combs be a little broken at the top of the hive, it matters not. Indeed, it is rather to be wished that they should be so; for the bees, in repairing them, are induced to carry their work upward in the glass or box that is given them. This operation may be done without any protection whatever by an experienced person; for, if done at a proper time and well managed, not a bee will take wing. All operations, except joining swarms, should be performed on a fine clear day, and between the hours of twelve and two o'clock. At that time such operations are done with much less annoyance to the bees, as well as with less chance of danger to the operator. I generally perform all the operations required in this system without the defence even of a pair of gloves; but I would not recommend any person to do so until he has had many years' experience in the management of bees; for being perfectly defended in every part against their stings, gives that coolness and confidence to the operator upon which the happy accomplishment of his intentions so much depends. Coolness and confidence on the part of the operator are essential qualifications; for anything approaching to hurry irritates bees exceedingly. Indeed, the hand ought never to be hastily removed from one position to another. "Quietness," says Dr. Bevan, "is the surest protection against being stung."

DEFENCE.—The best defence that I have found, is a mask of wire, similar to a fencing-mask, and a pair of very thick worsted gloves. It should be remembered that nothing is either more offensive or more irritating to bees than the human breath; therefore, breathing upon them must at all times be most carefully avoided.

COVERING FOR GLASSES.—When the bees are beginning to work in a glass, a cold night generally obliges them to forsake their newly-made combs, and to discontinue their labours, which are seldom resumed till the middle of the next day. To prevent this delay, I would recommend the space between the glass and its cover to be filled with fine tow or wool; the temperature of the glass being thereby kept up, and the bees enabled to carry on their labours without interruption. Wool is to be preferred, from its not being so good a conductor of heat as tow.

ENEMIES.—Continue to destroy queen wasps and hornets, and to watch carefully for moths. Should the bees of any hive appear inactive about this time, or should they not be seen to carry in pellets of

pollen, whilst others are doing it, and this inaction continue for eight or ten days, lose no time in examining the hive; and should the moths have begun their work of destruction, which may be known by seeing their combs joined together by their silken webs, cut away the combs affected with a sharp knife, and the hive may perhaps be saved.

SWARMS.—Those persons who are anxious to commence bee-keeping by purchasing swarms, must now provide themselves with such kinds of hives as they are wishing to see their bees placed in, and send them to the persons of whom they have agreed to purchase, that the bees may be hived into them at the time of swarming. Should it be straw hives that are chosen, let there be no sticks placed within-side them for the bees to fasten their combs to, for they cause them much trouble in forming the combs, and render the extraction of the combs almost impossible. Let there be no sugared ale nor honey put inside the hive, but let it be as clean and dry as possible; and when it is fixed where it is to remain, let there be no mortar or clay put round to fasten it to the floor-board—the bees themselves will do this more effectually. Clay or mortar tends very much to decay the hives, by retaining moisture, and is a harbour for moths and other insects. On the depriving system, a hive may be expected to stand for fifteen or even twenty years, if properly managed.

Purchasers should endeavour to obtain the very earliest swarms in May, if there be any, but on no account to have them after the 14th or 15th of June; and it is very important to observe that whenever a swarm is purchased, it *must* be removed to the place in which it is to remain upon the evening of the day it swarmed; for should its removal be delayed even till the evening of the next day, the combs will in all probability be broken, and the stock destroyed. Let it be remembered that the prosperity of the hive will much (perhaps entirely) depend upon its being finally placed upon the evening of the day it swarmed.

REMEDY FOR THE STING OF A BEE.—Persons who are much amongst bees must now and then expect to meet with a sting, although to myself it very rarely happens; never, indeed, but when accidentally having laid my hand upon one, or when having pressed one beneath the sleeve of my coat. "The sooner the sting is extracted," says Dr. Bevan, "the less venom is ejected, and consequently, less inflammation induced." After extracting the sting, I apply the least possible quantity of *Liquor potassæ*, either with a fine camel's-hair pencil, a sharp pen, or even with the point of a needle. The venom of the bee being an acid, this very powerful alkali neutralizes it, the pain is instantly removed, and neither swelling nor inflammation follow. Care must be taken not to use too large a quantity, or a sear will be the consequence, which will last for some days. Remember, the quicker the application the more effectual the cure.

THE BEE.

BY THE REV. C. A. A. LLOYD.

(Continued from p. 242.)

DISCOVERY OF THOMAS NUTT.—Nutt discovered that if a hive was so contrived that part of it could be ventilated at pleasure, the queen would not lay her eggs there, and that, consequently, the working bees would not deposit there any farina. It sometimes happens that bees build combs on the outside of their hives, and fill them with honey. Nutt ob-

served that honeycomb thus formed was free from larvæ, eggs, and bee bread. It then occurred to him that if part of the hive could be ventilated, so as to resemble the open air, honey so produced would be equally pure. The experiment was tried, and with full success, in side hives.

Mr. Nutt was born in the Fens of Lincolnshire, and his education did not extend beyond writing and arithmetic. He was bound apprentice to a shop-keeper who carried on several branches of business; but in 1822 he was afflicted with illness so severe that he was obliged to walk upon crutches. The subject of bees became his amusement in his hour of feebleness, and, at length, he made a discovery, which is certainly a very important one (as far as the use of honey is concerned) to all who regard the lives of the little busy insects who labour to afford us a grateful food and medicine, and the very useful substance of wax. Mr. Nutt states when he made this discovery, he had not read a single book on bees, and that had he done so, there was nothing in any book he had since seen that could have given him any hint on the subject, namely—ventilation to prevent the queen laying her eggs in a side hive. Side hives had been adopted long ago; but the great discovery of Nutt is not this, but ventilation regulated by the thermometer so as to prevent the air inside of the hives ever being more than 75°. In order to carry this new system into effect, a board must be provided which will hold three hives. This must contain passages with slides, so that the three hives may be united or disunited at pleasure. The entrances should be six inches wide through the board, and the height of a single bee. This saves cutting the hive, and is easier made narrower in the autumn, when wasps make attempts to rob the bees. This kind of entrance keeps out many plunderers, and also acts as a drain for the moisture which condenses in the hive. There should be a separate doorway rather higher for drones and the queen bee, to be kept open only in the drone season, or when the bees require more room than the entrance of six inches afford. On the middle of the board must be placed a hive of bees, which the writer prefers being of straw. The side hives he prefers being of wood, as much more convenient for ventilation and inspection, and also for affording the bees an opportunity of building the combs more regularly. In them there should be an opening at the top and bottom, covered with slides of perforated zinc. There should be glass windows and shutters to afford a sight into the hive as often as requisite. If the side hive has some old comb in it, the bees will take to it the readier, or in want of this the inside may be smeared over with honey or sugared beer. If, after all, the bees should swarm, put them immediately into the side hive, and restore it to its place, leaving open the communication into the middle hive, and, as far as my experience goes, they will not swarm again. There ought to be thermometers in the side hives, so contrived that they may be seen when required.

When the air in the side hive is above 75°, the ventilator must be opened until the temperature is reduced to 65°, but not below. When the side hive is full, slide a piece of sheet-iron under it, and remove it in the heat of the day to another shelf. Take away the slide, and in about two hours all the bees will have left the hive, which may be removed into the house, and, if the ventilators have been properly attended to, the honey will be found quite pure.

When a side hive is taken away, the bees should

be obliged to pass through the other side hive in their passage to and from the middle hive.

Another way of taking the side hive when full is as follows:—Open the upper and lower ventilators so as to reduce the inside of the hive to the temperature of the open air. When night approaches, the bees will leave the side hive for the warmth of the middle hive. The slide must then be closed which separates the hives. The side hive may then be taken away without disturbing a single bee. If the hive has not been kept properly ventilated there will be larvæ in it, and the bees will not so readily quit their dwelling. If any bees remain, the hive should be turned up and covered with a coarse cloth, and taken to some outhouse at a distance from the old hive, and left until morning, when the bees will be found on the cloth, which may be spread upon the grass, and the bees will fly home; or they may be taken into a room in a house and driven away with smoke. They will fly away through the window, and return to their dwelling.

Bees upon the plan of side hives, without allowing them to swarm, will make more honey, and carry less farina.

Fewer eggs will of course be laid by one than by two queens, and the bees will consequently have more time to gather honey. Upon the system of swarming, the new colony is often lost, and particularly in windy weather, and late swarms are injurious rather than beneficial to the bee-keeper.

MR. JAMES ROBERTS, of Crediton, in Devonshire, at the latter end of last century discovered a way of managing bees, so as to obtain honey purer than in the common way of keeping them.

A large vessel was placed under the hive, with a hole in the hive board, and a corresponding hole at the top of the vessel, so that the bees could descend into the lower apartment. This being a large airy open space with no permanent opening but at the top leading into the hive, the warm air naturally ascends, and the lower vessel is thus kept cooler than the upper, and in a rough way gives the advantage of Nutt's plan. In a fine day in the autumn, a hole is to be opened at the bottom of the lower vessel, and the hole at the top closed. The bees escape at the lower opening, and in the evening the owner may take as much honey as he thinks the bees can spare; a small falling door of talc might be put at the hole at the bottom of the lower vessel to prevent the bees from returning. Mr. Roberts called the upper hive the "Preserver," and the lower the "Reumerator." A plan of nearly the same kind is described to have been practised by a clergyman near Pethiviers, in *Mills on Bees*, 1766, p. 86.

Mr. W. Savage, of Swaffham, Norfolk, has carried on the plan of side hives for upwards of 40 years with great success, and has taken from three sets of bees 80lbs, 61lbs, and 51lbs, in the year 1842, without destroying a single bee, which information I have had from himself.

SWARMING.—A good swarm is said to contain 23,000 bees, weighing five pounds. When bees are in want of room, the queen, with a great number of her subjects, leave the hive, and proceed to a new habitation, usually the hollow of a tree, the roof of a house, or a chimney, alighting first on a branch of a tree for the purpose of collecting together. Prior to this the queen is much reduced in size by the number of eggs she has laid, and is thus prepared for a long journey. There is great agitation in the hive, excited by the queen, and the temperature is raised very high. The bees perspire, and the air becomes

intolerable. A louder hum than usual is heard, and the queen quits the hive, numbers leaving with her. In a little time the swarm clusters upon some branch of a tree or shrub, the bees hanging on each other by the claws of their feet. Their numbers vary from 12,000, which is a moderate swarm, to 40,000. The old queen leaves plenty of eggs in the cells, by which the population is renewed.

The queen will sometimes fall upon the ground, not being able to fly through some defect in her wings; then the swarm returns home again: the next time they arise they have another sovereign. A swarm will sometimes stay in the hive a fortnight before they rise again, waiting for a leader.

Thorley says, "the poor unhappy princess I have picked up in the grass, but never without some attendants, whom nothing but violence could separate from her." When bees have swarmed, before they have formed five or six square inches of comb, we find honey, eggs, and bee bread.—*Phil. Trans.* 1792.

A hive containing a few combs, and placed near an apiary, is almost certain to receive a swarm, which will sometimes fly into it at once without clustering, having previously for many days examined it by scouts. A hive should be placed at once with a new swarm upon the bench, and not delayed till evening.

Stray swarms are sometimes seen on their flight; in such cases, it may be a long time before a hive can be procured. When settled, Bagster recommends a person to throw his handkerchief over them, and tie the corners so as to enclose the bees, then to cut off that part of the bough to which they hang, with as little disturbance as possible, and they may be carried in this manner several miles; or you may have them in your hat. Combs that are without honey should not be destroyed, but carefully preserved for the following year. Besides, it is upon record that bees placed in a hive having ready-made combs, gathered more than two pounds every day; and that another swarm equally good, and placed in an empty hive, did not increase in weight more than one and a half-pound a day.

When a side hive is taken away, another should be placed on the opposite side of the hive of bees, and this may be left or taken away as circumstances happen as to fair or rainy weather.

In ventilating the hives, care should be taken to keep open the holes in the zinc plates, as the bees will stop them up with wax or propolis.

There is another plan, besides that which I have described, to take the honey without destroying the bees: which is, to stupify them with burnt fungus, ground ivy, or pounded laurel leaves. Take away the queen, then put the bees into an empty hive upside down; sprinkle them with sugared beer, and then lift a full hive over them. The two sets of bees will unite, and form one colony. This plan was, I believe, invented by Thorley long ago; but the honey is no better than upon the old plan of destruction, when the larvæ, bee bread, and refuse of the breeding cells, are all crushed together in forcing out the honey from the combs. Nutt's plan is much more cleanly, as the bees never clean out the breeding cells, and in this way come to an end after a few years. Another advantage in Nutt's plan is the preventing swarming, and the affording security against loss of swarms.

CHANGING THE MIDDLE HIVE.—When a hive is old, many of the cells are full of refuse, and become useless. In order to remedy this evil, let the bees work in a side hive without ventilation, and when it is well filled reduce the temperature of the middle

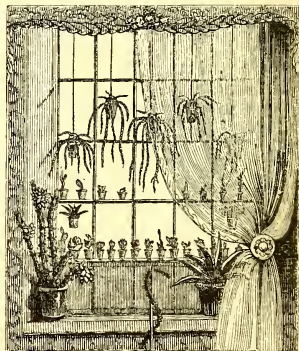
hive when the breeding season is over, or in early spring before the queen lays her eggs. The bees will then take away every thing they want out of the old hive, and when they have done this, the dirty wax may be removed, and the hive placed in its old situation.

TO INCREASE A STOCK OF BEES.—Let one set of bees fill two hives with wax and honey, without ventilating either; then, at the time of the year when there are drones, take away one of the hives to another part of your garden, and confine the bees to the hive twenty-four hours. The success of this plan depends upon there being larvæ in the hive not three days old.

(To be continued.)

CULTURE OF CACTACEÆ IN ROOMS.

THE success with which I have, during the last few years, grown a few specimens of cactaceæ as ornaments for the parlour window, induces me to believe that a statement of my method may be acceptable to some of the readers of THE COTTAGE GARDENER. My parlour window looks to the south, and the manner in which the plants are there arranged is shewn in this engraving.



Above the window is a rod, from which *Cereus mallisoni*, *C. flagelliformis* (or Whipthong cactus), with others of a pendant habit, are suspended by copper wire. Lower down, and parallel with the horizontal sash bars, are three shelves, the two uppermost three inches wide, and that at the bottom of the window of width sufficient to take the larger specimens, such as *Cereus serpentinus*, and *C. speciosissimus*, which attain to several feet in height. On the two uppermost shelves, close to the glass, in small pots, are *Mammillaria stellata*, *Echinocactus Eyresii*, *E. multiplex*, *Epiphyllum truncatum*, *Opuntia Mesembryanthemum decumbens*, and *Stapelia bifrons*. This is the station for my plants from the end of September either till May or the beginning of June. From November to March little or no water should be given. From June to September, or early in

October, if the weather prove genial, the plants are placed in a frame, in a southern aspect, out of doors. This is a very simple structure, being no more than a common garden frame, with glass top, and a series of graduated shelves inside, the upper one being fifteen inches below the glass. This frame is mounted on legs, three feet long, for the purpose of avoiding damp and insects.

The importance of solar light in the cultivation of cacti is well understood, and, although the window of my parlour looks to the south, I am of opinion that the light from *above*, which my frame affords during the most active period of their growth, is highly beneficial to the plants. This position, also, facilitates an operation to which I attach much value, namely, the use of a syringe with a fine-rose nozzle; the mode of potting, as hereafter explained, being expressly adapted to the free use of this valuable instrument. The best time for applying water in this manner, or otherwise, is in the afternoon, when the sun's rays have somewhat declined in power, thus giving time for the plants and soil to become in some measure dry before night.

Many of the globular cacti produce offsets at the base, or on the sides of the plant. These offsets frequently add much to the grotesque appearance of the plants, but where an increase is desired, they may be taken off when sufficiently large to handle, and planted, several together, round the edge of a five-inch pot, half full of drainage, in a mixture of silver sand and leaf-mould; they should then be watered carefully, and set away in some light and warm situation, where they will soon emit roots, and make nice little plants. These are the "miniature" cacti, which it has of late been the fashion to exhibit in tiny pots in the confectioners' windows of the modern Babylon.

The tall cacti are propagated by cuttings, from two inches to a foot in length; they should be planted in a mixture similar to the foregoing, and whether the top or the bottom of the cuttings be inserted in the soil is quite immaterial, for they will form roots and grow topsyturvy whenever you please.

I report my plants late in March, in equal portions of loam, peat, and leaf-mould, or thoroughly rotten manure, with the addition of silver sand, according to the quality of the loam. The pots should be small, and the mould should be well pressed down, especially round the collar of the plant. There should also be abundant drainage, consisting of potsherds and broken bricks. Bits of "hearthstone," from the size of a pea to that of a nut, mixed with the soil, are found useful, for to these, in repotting, the roots are found closely adhering. In repotting, I usually treat my plants to a new pot apiece, thereby complying with that neatness so essential in parlour culture, and avoiding the bad taste which, under the notion of ornament, defeats the object of its solicitude with green or red paint.

W. K. WAKEFIELD, *Southampton Street, Camberwell.*

MY FLOWERS.

(No. 26.)

EVERY preparation must now be made for the approaching summer. The walks should be weeded, rolled often, and hoed up, if any rough or uneven places appear, so that the roller may level and harden them. Gravel walks should be as hard and smooth as possible; they are then more agreeable to the feet, dry up more quickly after rain, and weeds cannot so

easily spring up. The scrapings of *well made roads* when they can be procured, make delightful garden walks, if constantly kept rolled; but the scraping of lanes, or muddy roads, will not do so well, because they are not sufficiently gritty. Let the edges of the walks be kept neatly trimmed, if bordered by turf, or if passing through a grass-plot. A sharply cut walk looks dressy and pleasing, but if neglected it has a slatternly, ragged air, and neither the lady nor the cottager should allow of this. The edges of beds and borders, too, must be neat and sharp; a small pair of clippers, or large scissors, will enable a lady to keep the straggling grass from trespassing, and the very improved appearance of the garden will repay the trouble. Flowers look more gay and happy in well trimmed borders; they are almost as much set off by the neatness of their residence as the active mistress of a cleanly cottage is by her's. Nothing delights the eye of a passer-by so much as a neat and blooming cottage garden, and a clean and bright looking cottage kitchen, with its shining tables, and clock-case, and dresser, and tins. Whoever enters that cottage will be *almost* sure to find a sober husband, well clad children, and happy faces. They will also be almost sure to find on the well dusted shelf, the Book that says, "Behold, thus shall the man be blessed that feareth the Lord." I have seldom entered a cottage of this description without finding such to be the case; and *I am quite sure*, that next to the fear of God, and love for His statutes, to which alone a blessing belongs, *next* to that holy fear and love, the most effectual way to keep the labourer from the beerhouse, the children from starvation, and herself from wretchedness, is for the wife to have a clean and quiet home. Dirt, disorder, and discord always point to the beerhouse, and the beerhouse in return points back to them. For her own sake, then, let the cottager's wife be clean and thrifty; but let her remember that there is a curse, and not a blessing, upon all who do not "hearken unto the voice of the Lord their God."

This is a good time for laying down turf, either for lawns or to fill up useless borders. Let the soil be raked very even, and raised sufficiently high to allow for the sinking of the soft earth after the sods are laid down. They should be neatly fitted together, and well beaten down with the spade: roll them frequently, if possible, to press them into their places; but as many ladies may not be able to achieve this, they may content themselves, as I have often done, with treading constantly upon the surface, and pressing the edges and uneven parts down firmly with my feet. The soft showers of April will soon cause the young grass to spring up, and the unsightly look of the fresh sods will fast disappear.

The seeds of perennials and biennials should now be sown for next year's bloom. Where a lady possesses warm sunny borders, it is very interesting to raise seedlings, and watch for new varieties when they come into flower. Pinks, carnations, sweet-williams, polyanthus, auriculas, and anemones may be increased by seed sown at this season. The seed bed should be in some retired spot, as the plants will not beautify the garden, and should be marked out into squares, to separate the different kinds. Here they will remain till old enough for removal in the summer. All these plants may now be parted, and fresh planted, for blooming this year; as also heartsease, rose campion, double daisy, and many other beautiful perennials, if they have increased so much as to need separation.

The brilliant anemone is now decking the garden,

and in full beauty. The poppy anemone, which is the parent of the best florists' flowers, comes from a very sunny land, to enrich our northern soil. It is a native of the dry and burning plains of Syria and Asia-minor; and it also blossoms at the feet of the wallflower, on the verdant steep of Mount Carmel. The poppy anemone has a delicate white flower, with a crimson ring round the centre; and, with the deep red and purple varieties, enrich and beautify our borders till late in spring.

Among our cottage banks and hedges, and clustering beneath their walls, that pretty, simple flower, the periwinkle, now blooms freely. It is a richly-growing, spreading plant; and fills up damp corners, odd nooks, and vacant spaces, usefully and prettily. The blue and white flowering plants should be placed together; and it asks for no boon but to be let alone, and bloom and spread in peace. I love to see it entwining itself among cottage pailings, and creeping over the banks and under the windows, where there is sometimes little space for other flowers to grow; and it is occasionally found in native wildness wandering by the sides of streams.

The bright elegant blossoms of the larch are now showing themselves on the taper sprays. They are small, and add nothing to the general appearance of the country, but when examined are exquisitely beautiful, and tinge the trees with a delicate hue before the leaf appears. They will soon, however, be surrounded by the soft green tufts that clothe the boughs; and when this graceful tree stands fully arrayed in its green and crimson dress, few can exceed it in beauty. Its spicy fragrance, too, is powerful, especially after rain, and then it scuds forth its odours in abundance; and I have perceived the peculiar and well-known scent of a larch plantation at a very extraordinary distance. There is something exceedingly striking in the sweetness of trees and plants after rain has fallen. It is like the outpouring of praise for mercies granted, and speaks loudly to the careless, unthankful heart of man, who receives so many mercies daily and hourly, yet scarcely seems to feel them, or to think from whence they come. The song of birds, too, is more loud and tuneful when the soft shower has passed away, and the sun brightens the glittering scene. Let us, as we enjoy the smell of the refreshed earth, and the chorus of rejoicing birds, add our heartfelt homage for the showers of blessings He pours upon us in ten thousand forms; and let us exclaim, with worshipping Israel, "the Lord is good, for His mercy endureth for ever!"

ALLOTMENT GARDEN RULES.

"An owner of allotments" has favoured us with the rules subject to which he lets them to the tenants. We think they contain all that is desirable; and they have the great merit of being short and intelligible. The last rule, we agree with our correspondent in thinking new; and, moreover, it is highly beneficial and equitable. He says:—

"Before I drew up these rules I procured others from various quarters. They appeared, in general, to be too complicated. My object was to make mine as short and simple as possible. The last rule (that of leading in their manure for them,) I have never seen in any others. The poor people tell me, that is one of great value to them, as the hire of a cart and horse is a serious matter for them; and it costs me nothing. I send one of my carts down to a cottage; it is left there for a few hours without the horse; the la-

bourer fills it himself, and in the evening, after other work is done, one of my horses is sent again, and conveys it to the allotment field. No horse or cart but my own ever goes into the field.

"The twelve allotments, which consist of a rood of land each, shall be let at a yearly rent of twelve shillings each, that is to say, ten shillings for the land, one shilling in place of all rates and tithes, and one shilling for the maintaining of the gates and fences.

"The land shall be let for one year only, and no notice to quit shall be considered necessary; but it shall be relet to the same occupier, provided his conduct has been satisfactory during the preceding year.

"The rent shall be considered due on Martinmas-day in each year, and if it remains unpaid for one week the allotment shall be forfeited.

"The allotments shall be cultivated solely by spade husbandry.

"Each occupier shall be allowed to fence and to divide his land as he pleases, but the same crop shall not be planted two years in succession on the same part.

"A space of eighteen inches shall be left on the south side of each allotment, as a division between it and the adjoining portion.

"Any occupier trespassing on his neighbour's allotment, or suffering his children to do so, or turning any live stock on the land, shall not be allowed to continue his allotment after the end of the year.

"Any manure provided by the occupiers, shall be led for them to their respective allotments free of cost."

EXTRACTS FROM CORRESPONDENCE.

GOOSEBERRY BLOSSOMS.—At this season of the year great injury is done to the gooseberry blossoms by small birds taking or picking off a portion (and in some cases the whole) of the flowers. These they do not eat, but only pull them off, either for mischief or amusement, as you may find them lying under the trees from which they have been pulled. I have found that the blossoms thus mutilated are never productive, their fruit seldom or never attaining the size of a good sized marble. The most effective and economical plan to prevent the birds destroying the blossoms is to get a few sticks about three-quarters of a yard long; to insert these in the ground, a few inches deep, at a distance of six or eight yards apart, on each side of your gooseberry-trees; take a portion of knitting cotton (which may be bought at the hosier's for a halfpenny an ounce), tie it to the first stick, then pass it on to the next, wrap it round, and so on till you get to the end; then pass it up the other side in like manner, so as to form a line on each side of the trees. As soon as I find the birds have begun to take the blossoms I adopt this plan; and do not recollect ever losing a single bloom afterwards.—J. TURNER, *Necpsand, Sheffield.*

PEA SUPPORTERS.—Referring to the hurdle, or pea-stick substitute, in the No. for 15th of March of THE COTTAGE GARDENER, as I have for two seasons used such a substitute, I beg to offer you my experience of such, as the error which I found in my substitute the first year also exists in yours, although our plans are different. My plan simply was, having a double row of peas, up each side I drove in a stake, say

from three to four feet long, and at every three or four feet distance. I then took coarse spun twine (rope-yarn, as the sailors call it), and stretched it longitudinally (or lengthwise) from stake to stake, from the bottom up to the top of the stakes. My experience of this then, the first season, was, that at the third or fourth space betwixt the rows of twine my peas all grew out; and, as they are not nice to meddle with while growing, I was obliged simply to put my twine round again. The conclusion I came to was this: that if I would carry my twine up to the top of the stake as the *peas greer*, that the plan would suit well—and so it did, *last season*. Now, this same objection holds good in your plan—about midway up, the peas will fall out, and so trouble the grower; but if he keeps some spare twine, and stretches it longitudinally as the peas grow, I should say, from my experience, that a very excellent substitute would be found.—W. R. W. SMITH, *Gloucester*.

[Our correspondent may be right; and some string placed lengthwise, as well as up and down, may be required; but we shall be better able to tell a few weeks hence, for then a crop of peas will have told us what they think of our supporters.—Ed. C. G.]

PEA SUPPORTERS.—Another correspondent, who signs himself "AMBLER," and who seems to be one of several allotment gardeners who have poured all their scraps of information and their inquiries into one letter—a plan we hope others will adopt—also seems to prefer putting the string lengthwise, or horizontally; and his plan beats our own in cheapness. He says—"We think of trying to grow peas with the bands or cords running horizontally, quite the reverse to your plan. I shall put a stake every four or five yards along each side of the row of peas, and take small tarred band or string, and carry it horizontally along the side of the peas, passing it once round each stake as I come to them, leaving a space of three, four, or six inches betwixt the lines or bands of cord, keeping them nearest together at the bottom, stretching the lines as tight as to adjust them well straight. I think by using this, instead of all sticks, the peas will have more light and air, and we shall not be encumbered with so many sticks to thrust into one corner or another; and the room they occupied during winter will do for something else, as I have no ground to spare for such sticks neither winter nor summer."

GOOSEBERRY PRUNING.—In pruning gooseberry-bushes, I differ a little (from Mr. Turner,) in the shortening of what branches I may choose to leave. I cut all branches clean out except those which stand right and well ripened, and these I never shorten at all; because this, in general, would make a new shoot just at the tip-end where I had cut it off at. But, if I leave it on, that is, the shoot at its full length, it bears fruit its whole length, and the new wood springs from the bottom of the branch or from the main stem of the bush, and keeps it more handsome, and bearing lower down.—Geo. AMBLER.

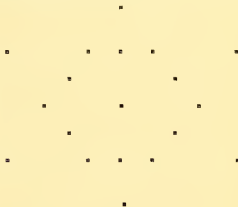
[If our correspondent only wishes to grow moderate-sized gooseberries, for household purposes, his plan may be pursued very successfully; but, to obtain very large fruit for dessert or for exhibition, Mr. Turner's mode of pruning is best.—Ed. C. G.]

NUX VOMICA TO POISON MICE.—I have used it many times for the house; and if a little sugar be put into the liquor in which the nux vomica has been boiled, and the wheat steeped in it, the mice will stay and feast until they die at or near the plate.—W. W.

PLANTER'S PUZZLE.—I will just remark on Senilis's puzzle for planters, that I must give it up. But I think I can tell how to plant 24 trees in 20 rows, with three in each row; but perhaps he, and you too, may know this as well as I do; however, here it is.—W. W.

Another explains the puzzle thus:—"Senilis" may construct a hexagonal figure; that is, a figure having six equal sides. He may either do it according to "Euclid's Elements,"—book 4, proposition 15,—or not. Let him join the alternate angles, also the opposite ones; then, on each angle in the figure, and also where the lines intersect each other, he may plant his trees.—A LOVER OF GARDENING.

[If we understand our correspondent correctly, the trees, according to his explanation, must stand in the following order.—Ed. C. G.]



MADAME LAFFAY V. PRINCE ALBERT.—The hybrid perpetual rose *Prince Albert*, which you recommended a correspondent a few numbers (No. 23) back, will most probably disappoint him. Even in the Isle of Wight, where most roses, including China and Tea-scented, bloom to perfection in the open air, this rose (*Prince Albert*) rarely or ever opens well. Why not have said *Madame Laffay*? I have one in a *damp* situation and facing the *north*, which is covered with bloom every year; it well repays me any attention I bestow upon it.—G. W. TUCKER.

DESTROYING THE GREEN-FLY.—I do not observe any notice of my plan for clearing insects off my house pets, and if it affords a useful hint to any of my fair friends at a distance they are welcome to it. I use a brush, what painters call a "half-pound" brush, and, if I see a few insects on a leaf of one of my geraniums, I hold the leaf in one hand firmly, and with the brush in the other touch the leaf, both back and front, lightly and quickly, whiffing the aphides, and the dust too, as far off as I can. I go over the stems and leaves in this manner very frequently, and consider that it does the plants much good. Having seen tobacco-smoke produce fatal effects, I never use it. Single insects, here and there on a plant, I remove with a shawl-pin, or some such thing. If on a tender-leaved plant, a narrow slip of paper, bent to a half-tube shape, can never injure the most fragile texture, and a piece held in the other hand, for receiving the intruders upon, prevents them from falling on another part of the plant.—K. B., *Birkenhead*.

RASPBERRY CULTURE.—I will say a few words on the cultivation of the raspberry, having grown it for five or six years with great success. The manure that I give to the canes is chiefly that of the pig, in rather

more than a half decayed state, put on when I cultivate the ground at different times of the year. The pruning I perform the first time by cutting off the old canes as soon as the principal crop is over, though I do not always wait for that, but I cut the old canes off before they have quite done bearing, and all the weakest of the young ones, but two or three, to within from two to three inches of the ground; and by thus treating them, I get a very fine crop of fruit, of superior flavour, and very large. Mine are the single bearing red variety.—E. P., a MECHANIC.

TUBEROSE IN OPEN BORDERS.—The Rev. C. B. Taylor, of Odey Rectory, near Ipswich, in a letter dated April 9th, says, "We have had the tuberose in open borders, growing strongly on deep green stalks, of a moderate height, and the buds tinged with pink from their healthy strength."

RHUBARB CULTURE.—Thinking that the following method of growing a large quantity of rhubarb from a few roots may assist cottage gardeners to pay their rent, or be a source of profit to them, I take the liberty of sending it for insertion in your valuable work. In September choose a place in the garden that has a south or south-western aspect; for one root dig out a pit of four cubic feet, and in the same proportion for more roots; fill the pit with alternate layers of *littery stable dung* and *turf*, treading them down as they are put in. Plant a root of Victoria rhubarb in the centre—let the plant grow the first season without pulling off the leaves; the second season it will be a fine healthy plant, and the produce will be enormous. Two roots of the Victoria variety have produced at the first plucking more than 360lbs of stalk, without the leaves, and sold in the market for 17s. The yearly produce from two roots will be about twenty-four or twenty-five shillings. Cottagers residing near market towns, by growing rhubarb this way, may realise enough to pay their rent, on a very small space of ground. They have the means at command, for turf may be pared from the roadsides and ditches, and dung may be collected from the road in a very short time. As rhubarb obtains treble price when brought into the market early, one or two roots of a large and early variety should be planted. The Early Monarch possesses both these properties.—JOS. BALL, Longton Farms.

SCRAPS.

COUVE TRONCHUDA AND CHOU DE MILAN.—Mr. McIntosh, of Dalkeith Palace Gardens, says, "The culture of *Chou de Milan* is nearly the same as that of Scotch kale or German borecole, viz., sow in the third week of March, and plant out the stronger plants in June, leaving the smaller to be planted out in July for a successional crop. They would, however, like all kales, be the better to be transplanted from the seed into a nursery bed, and from the latter transferred to the place where they are to grow. Of the Couve Tronchuda, or Portugal kale or cabbage, there are a dwarfier and taller kind mentioned in seed lists. We have cultivated both, and found much less difference between them than there is between the tall and dwarf Scotch kale or curlies. At the moment we do not recollect of having heard the Couve Tronchuda called Russian cabbage; nevertheless, it may be so, and if so, it is a very improper name, as it is almost too tender to stand an ordinary English, much less a Russian winter. The taller Couve Tronchuda was introduced into England in 1821, and the

dwarfier kind in 1822. They should be sown at the same time as early cauliflower, upon a slight hotbed, and planted out in June."—*North British Agriculturist*.

[In English, *Chou de Milan* is literally *The Milan Cabbage*. The *Couve Tronchuda* is the Portuguese name for our *Ribbed Cabbage*, or *Kale*. It is much grown in Portugal and France; the large, white, fleshy ribs of the leaves being excellent, when cooked as sea-kale.—ED. C. G.]

ONION DRESSING.—Mr. Smith, gardener at Pitfour, Aberdeenshire, grows onions in the following mode: sowing the seeds upon the manure, and pressing it down with the back of the spade, then covering them with a little soil from the alleys. When about an inch above ground, give them once every three or four weeks a mixture of guano and charcoal dust, to the extent of a handful to each square yard, one-third being guano, choosing moist days for applying it. During the years 1845-46 and 47, Mr. Hendy says he saw this practised with unvarying success; and onions were exhibited at the Aberdeen and Peterhead Horticultural Society's shows which measured 14½ inches in circumference, grown in this way upon a black stiff soil, all of common sorts.—*Ibid.*

FACTS ABOUT PARSNIPS.—C. Beamish, Esq., of Delacour Villa, Cork, has contributed the following interesting communication to the *Cork Constitution*. In February, 1847, Mr. Richard Hartland, of Patrick-street, had some good, well-mixed farm-yard dung spread over two English acres of his farm, "Ardmanning," a deep lime-stone soil. He then had them spade trenched 18 to 20 inches deep, at a cost of 50s. per acre, throwing up to the surface from 2 to 3 inches of the yellow subsoil. He sowed Jersey parsnip seed in drills, 16 inches apart, about the 1st March, 1847, kept the ground clear of weeds, by *surface hoeing* during the summer, and his produce was about 26 tons of roots to the English acre. Upon these he fed every description of animals, and about the 1st March, 1848, he killed seven pigs *fattened entirely upon them*, cut up in small pieces, in the *raw state*, without any other kind of food, or any cooking whatsoever.

The butcher who killed them said he had never in his life met with healthier intestines; the fat was beautifully thick, clear and solid, the meat was firm, and peculiarly white; a piece of bacon which I cut up on my own dinner-table was pronounced by every one who partook of it, to have a delicious flavour, without tasting at all of the parsnip upon which it had been fed.

Influenced by so favourable a result, about this time last year I spread good, short, well-rotted dung over a field of several acres, which I then trenched 12 inches deep, and pulverised with "Kirkwood's" grabber. "Lazy-beds" were then formed by the plough, 6 feet from the centre of each furrow, from which the earth was dug and thrown up by the spade and shovel, to obtain artificial depth, the beds being 4½ feet, and the furrows 18 inches wide, when completed. The seed having been steeped two or three days in well diluted liquid drainings from the dung-hill (about 7 lbs. to the English acre), two men placed opposite one another, in contiguous furrows, opened with light Irish spades, drills of about one inch deep, eight to eleven inches apart, *across* the beds, their spades meeting in the centre. A girl followed in each furrow: each girl, extending her hand at the same moment to within about five inches

of the centre of the bed, dropped a few seeds at equal distances in the same cut, so as to have the plants from 9 to 10 inches apart across the beds. A man *standing on the top of the bed* covered the seed firmly with the back of a hay-rake, and by his ordinary walking, while at work, further pressed the earth closely upon it. A man with an iron garden-rake, *standing in the furrow*, came last, picking off lightly the larger stones, and removing any obstructions to the coming up of the seed. Thus, four men opening drills, two girls sowing, one man covering the seed, and one man raking off, formed a band, in which all appeared to be equally occupied. Supposing wages to be 10d. per day for men,* and 5d. per day for women, and a plough and pair of horses 5s per day, the expense of this method of sowing is as follows:—

	<i>s. d.</i>
Spreading manure, broadcast, with a shovel	10
Ploughing into beds	5 6
Digging furrows, shovelling the earth over beds, and levelling	7 4
Sowing and covering seeds	3 8

Being a total of about 17s. 4d. per English acre. One plough for 1½ day, and 12 men in one day, prepared and trenched sufficient beds for one day's sowing of five men and two girls. One thinning, and three weedings, during the summer, cost altogether from 30s. to 40s. per English acre, a few spots where the seed failed being filled up with the best of the plants removed in the thinning; but though pursuips appear to grow well after transplanting, so great a number of small fibres come in the place of the broken tap-root, that it is scarcely worth the trouble and expense of attending to. The crop grew well, and promised to be very abundant, until about the 1st of September, when the leaves began to show spots, like those on the potatoes, which rapidly increased, and about the middle of that month vegetation most probably ceased. Instead of the 25 tons which I expected from the luxuriant appearance of the growth in August, I dug out finally only from 16 to 18 tons, according to the goodness of the soil in different parts of the field. Seventeen pigs have been fed upon some of them throughout the winter, *given perfectly raw*, cut into pieces, and I never saw more health, more firmness of flesh, or more growth from any other description of food. Having kept an account of the expense of sowing and cleaning this crop in drills (20 to 24 inches apart), I find it to be only about half that of beds (with 2lbs less seed per acre), therefore, where the soil is sufficiently deep to be moved to the depth of 18 or 20 inches (*the tap-root will descend three feet in a permeable subsoil*), the drill system would appear to be the most preferable.

PEAS.—The following was communicated lately to the *Irish Farmer's Gazette*, by Mr. James Drummond, gardener at Blair Drummond, near Stirling, celebrated as a model of the taste of the late Lord Kames, author of the "Essay on Criticism."—"The varieties of the garden pea are very numerous and very hardy, not particularly adapted to forcing, but may be greatly accelerated by sowing in pots, in boxes, on pieces of turf, drain-tiles, &c., and placing them in a peach-house, glazed pit, or frame, and, when four or six inches high, planting them out in a warm border along the south side of a wall, hedge, or paling, and protecting them for some time with yew, spruce, or silver fir branches.

"I have practised the following method for at least 18 years, and find it far preferable to sowing in

pots, boxes, turves, or drain-tiles, &c. When I commence forcing the early peach-house here, which I do about the beginning of February, the border inside of the house, on each side of the pathway, is covered to the depth of three or four inches with cow-dung gathered from the park; over this is laid two inches of half decomposed tree-leaves, passed through a very wide sieve, raking level, and beating slightly with the back of a spade: upon this the peas are sprinkled as thick as they will lie together, so that one seed may not lie above another, and covered with riddled leaf-mould two inches thick. In the course of three weeks or so, the peas are fit for planting out, being from four to six inches long. A border on the south aspect of a wall is chosen for the first planting; the ground being dunged, and dug deep and fine, the line is stretched in a diagonal across, or in a parallel direction along the border, according to taste or circumstance, and a deep perpendicular cut or furrow made along the line. The peas are then raised from the border of the peach-house, with a three-pronged hand-fork, in large turves, and carried in a basket, barrow, or sieve, to the prepared drill. They are then divided with the hand into small patches, drawing each patch longitudinally, then placing it in the cut furrow, in the manner of planting box-edgings, letting the roots hang as perpendicular as may be. By this operation very little of the dung and leaf-mould falls from the roots. The earth is then laid over and pressed firm to the roots, and another furrow made and drill planted in the same manner, nine inches from, and parallel to, the other, thus forming a double row. A little earth is drawn up about them with the draw-hoe, and staked pretty closely, and a few silver-fir twigs are stuck among the stakes to ward off sharp frosts; these are removed when the weather gets mild.

I have been long in the practice of planting and sowing my peas in double rows, with the rows from 20 to 30 feet apart, and cropping between with dwarf vegetables, such as cabbages, cauliflowers, carrots, leeks, onions, turnips, schorzonera, salsafy, beet, &c. I find, by experience, that the peas pod far better, and are not so apt to mildew when the rows are considerably detached; and they are excellent shelter for the dwarf vegetables between them; and, also, that transplanted peas do not grow so tall, and are more productive than those that are not transplanted. This may be attributed to their being sown among the leaf-mould, where a greater ramification of the roots takes place than in common mould; and, in addition to this, in the act of raising the plants for transplanting, each of the main or tap roots is broken off, and the consequence is, after being transplanted, a further multiplicity of the rootlets ensue.* Peas sown on the 1st of February, and transplanted as described above, are fit for gathering about the same time as, or even sooner than, those of the same sort sown on the 11th of November preceding, in the open air, along the bottom of a wall of south aspect. I gathered excellent race-horse peas on the 26th of May last, and some former years, which were sown on the first week of February preceding, in the peach house, and transplanted as already described. This may be considered very early for this part of Scotland.

* A correspondent (*J. M.*) says, "Unless by those who have tried Mr. Drummond's plan of having the drills at 30 feet distance, no idea can be formed of the advantage gained in every way. One very material one he does not mention—the room gained; for they only take up the space of any low growing crop." This is certainly true, if the rows are ranged one end to the north, and the other to the south, so as to throw but little shade on the crops on either side of them.—*Ed. C. G.*

* These wages in England are to be doubled to make the calculation correct.—*En. C. G.*

By the accelerating and transplanting method, there is a great saving of seed, especially if the winter and spring months are very wet and frosty; it is also more secure against the attacks of mice, pea-fowl, pigeons, and pheasants, the latter of which are among the worst depredators that ever entered the precincts of a garden. Since I adopted the above plan of germinating and transplanting my peas, my loss in seed has been comparatively trifling, as I make successive sowings of peas, beans, and French beans till the end of May in the houses for transplanting, when, for six weeks after, I get the principal late crops sown in the open garden without much molestation, as the pigeons and pheasants commit their greatest ravages in the spring months, before they begin hatching their young.

To farmers, small holders of land, and cottagers, a modification of this plan may also be of great use. A slight hotbed may be made in any warm spot exposed to the sun's rays: the cow-dung and leaf-mould may be laid on the surface of the bed, and the peas sown, covered with the mould, and protected with boards, a mat, an old carpet, or spruce fir branches, wattled hurdles, &c., and transplanted as described, thus saving seed, and bringing an early supply of peas to the table.

Germinating peas for transplanting, by the above method, is attended with far less labour than one would suppose who has never practised it. A border of 200 square feet will contain a sowing of two pecks, and this is about the size of the inside border of an ordinary peach-house or viney. The following are the sorts of peas generally sown here, with the height of the straw; a sowing of which is made every fortnight, from the 1st of February to the middle of July, sowing in the order in which they stand in the list, or nearly so:—

	Height ft. in.
Prince Albert	2 0
Early race-horse	3 0
Early Warwick	3 0
Early frame	3 6
Charlton	4 0
Groom's dwarf	1 6
Beadman's dwarf	2 0
Bishop's long pod	1 6
Auvergene	4 0
White podded	5 0
Knight's dwarf marrow	4 0
Woodford's green marrow	3 0
Purple podded	5 0
Knight's tall marrow	6 0
matchless marrow	6 0
Victoria marrow	7 0
Blue Prussian	4 0
British Queen	4 0
Blue climber	4 0
Large crooked sugar	5 0
Fair bird's champion	4 0

The last two sowings are Early Frame and Early Warwick.

HOW TO HAVE ROSES IN NOVEMBER.—MR. RIVERS, of Sawbridgeworth Nurseries, gives the following directions. In February take up some two or three-years-old plants of any of the following Hybrid Perpetuals:—Baronne Prevost, Mrs. Elliott, Robin Hood, Géant des Batallies, La Reine, Comte de Montalivet, Dr. Marx, Duchess of Sutherland, Marquise Bocella, Madame Lafay, Comtesse Duchatel, Rivers, and Sidonie. Shorten their long roots to half their length, but leaving their fibrous roots and heads unpruned. Plant them thickly under a north wall or

fence. At the end of April take them up, prune their heads closely; plant them in soil manured six inches deep with half-decayed dung, and dug two feet deep. Dip the roots in thick puddle of loam and water; pour water into each hole before filling in, and give a gentle pressure with the foot. "Rose-trees treated in this manner will last for several years, and this annual treatment may be exactly as above."—*The Florist*.

HOME-GROWN CHICORY.—At a late meeting of the Sheffield Literary and Philosophical Society, Mr. G. Wilkinson read a paper on "The cultivation of chicory," from which we find that it was not grown in England 20 years since; but now is raised extensively in the Isle of Thunet. At York, 2000 acres are devoted to the cultivation of chicory, producing £100,000 annually. In appearance the chicory plant resembles the carrot, having a large succulent foliage. It is sown in May, and gathered after the frosts have destroyed the top. On being gathered, the root is sliced, dried, and roasted. [Chicory, succory, or wild endive (*Cichorium intybus*), for by all of these names it is known, was formerly cultivated very rarely and sparingly, to be blanched and used in salads. It is now grown to the extent mentioned above for the sake of its roots, which are used as a substitute for, or to mix with, coffee. It is very wholesome, and the flavour, after roasting, agreeable.—Ed. C. G.]

TO CORRESPONDENTS.

TROPEOLUM TRICOLORUM (E.).—The top of this, you say, has been broken off by the carriers in coming to you from London. This is very unfortunate, as it is ten to one if it will start again before the autumn. Keep it moderately moist for a week or two, and place it near the glass in a greenhouse. If after that time you observe no signs of a new shoot, withhold water, and place it in a dry cool place for four or five months. Keep an eye upon it, as it may start some day when you least expect it. As soon as you observe a shoot, whether now or afterwards, then give more water to encourage its growth. Wet and frost will destroy the bulb if allowed to reach it while dormant.

WIGGELA ROSEA? (Ibid.)—This does not flower when very young. It should be well grown during summer, and have its wood well ripened in the autumn; then be cool and quiet through winter, and will, at this time of the year, be showing its flower buds. Plants 18 inches high, in a proper state, will be strong enough to flower.

TROPEOLUM LORIBANUM (Ibid.)—This is not very difficult to flower, though it will not bloom if kept in a very cool greenhouse. Sow the seeds, or strike cuttings, early in spring; grow the plants on during the summer; keep them free from the red spider, and in moderately sized pots in light soil. Place them, if you have such a thing, in an intermediate house about January, and they will flower freely enough. If you have not such a house, place them at the warmest end of the greenhouse, and they will flower then, but not so well. It is essentially a winter flowering plant.

GOOSEBERRIES (Ibid.)—There is no objection to a south slope for these, which you have purchased of a good grower. They will grow with some short half-rotted dung, and follow the directions he gave at p. 304 of our first volume.

CARNATIONS (W. H. G.).—Your carnations in rows, one foot apart, and four to eight inches in the rows, are planted too thick; but they must remain now. Leave one lateral, and one to layer besides. Thin the buds on the flower stems when they appear. Keep them tied up, but not too tightly, or they will break their own stems.

CAMPANULA PYRAMICALIS (E. K. B.).—Your campanula, looking "like a notched stick with about 20 small leaves at the top," will never flower in its present state. Now must cut off the top. Let it lay two hours to drain off the sap, then plant the top in a small pot, in a shady place, as a cutting. As soon as it is rooted, put it in a larger pot, and repeat this three times this summer, and the cutting will flower next year. Cut the old stem down to within two inches of the pot; give it no water for a fortnight; if then you observe any roots starting, give a little water about once a week. If the buds continue to advance, reduce them to two or three, and repeat. If the plant does well, it will flower too next year. The best way, however, would be to throw your useless plant away and procure a fresh one.

PEARS FOR WINTERING (E. G.).—In addition to what we stated at p. 398, vol. 1, you ask for further information as to planting the trees. Would you not do better by deferring your planting until the early part of October? We should not like to plant now. Your first query should have arrived some weeks sooner than this (April 18th). We again say plant six or eight apart on the north wall before named; plant the dwarf-trained trees midway between these, the latter to be the permanent trees ultimately; all these to be nailed to the wall. Now with the border you may do what you please. By all means, we say, plant (in your cold county) useful dwarf standards along the front in the border farthest from the wall, of course you will want an alley or temporary path between for operations. Let us advise you to

plant in autumn, and in the meantime to make some preparations; you will lose no time in *reality* by taking this advice, and the pages of *THE COTTAGE GARDENER* will, ere then, furnish information on which you may rely.

TUBEROSE AND POLYANTHUS NARCISUS (*J. Godfrey*).—You can bloom these in hyacinth glasses filled with water, but in moss much better, and with less trouble.

CUCUMBERS AND MELONS (*S. K.*).—The chamber of your pit heated by hot-water pipes, but kept moist by leaving an open trough filled with water on the top of the pipes, has induced the roots of the plants to come through the hurdle supporting the soil; and you have tried in vain to reduce the vapour by placing some draining pipes passing through the soil from the chamber into the frame. If the vapour in the chamber of your melon pit is not above 100° the heat will not injure the roots, and as they have got through you must keep on the vapour, otherwise they will perish in dry heat. Make a small opening at the level of the back pack, near the door, through which a rush of air will pass into the chamber, and drive up vapour through the pipes. The *mildew* on the leaves of your plants is a common complaint this dull cold April; dust the leaves affected with flowers of sulphur.

MANURE FOR SHRUBS, &c. (*Rev. C. B. Taylor*).—Your garden soil is a stiff loam and in parts clay, mixed with masses of chalk; and you wish to be informed of the best way to manure it for shrubs and flowers. This kind of soil is, of all others, most improved by burning, after thorough draining. Also let it be well worked in *dry* weather in summer, and turned up rough for winter frosts. Use, also, long litter or farm-yard manure, not too much decayed, which will act mechanically, and assist in pulverizing the surface.

GIANTIANELLA (*Gentiana acutis*) (*Ibid.*).—The blue giantianella delights in strong cold water, and to live without as seldom as possible. The common single garden-anemone also requires strong rich land, and abundance of moisture when its bloom is appearing.

SIMLA SEEDS (*Ibid.*).—Pray do not send us the seeds from Simla; we have had a surfeit of them. Many thanks, nevertheless.

PALE YELLOW ANEMONE (*Ibid.*).—The wood anemone, with the "rich golden-yellow flowers" is *Anemone ranunculoides*, one of our prettiest native spring-flowers.

CAMELLIAS AND AZALEAS (*A Young Florist*).—Mr. Beaton will write upon these ere long. In the meantime continue your present treatment.

CUTTINGS FOR EMIGRANTS (*A Colonist*).—Vine cuttings can be, and have been, taken to all parts of the world, from Europe and Europe, and so many cuttings of poplars, willows, oaks, elms, and, indeed, of all our forest trees, but none of them are worth the trouble of packing except the vine; and every grape vine might be sent from Europe already in full vigorous growth, and might be sent from Sidney to New Zealand at half the expense of packing them here, to say nothing of the risk of losing nine-tenths of them on the voyage. None of these things can be removed before next October, and we shall open the whole question before then, and collect all the evidence on the subject.

NAME OF INSECT (*An Enquirer*).—There was no grub in your letter when it reached us. Carbonate of soda will render your hard water soft. Thanks for the anecdote. Slices of carrot are a better treat for wireworms than slices of potato.

HUES (*P.*).—They would thrive at Peckham. Wildman, we think, kept them in the very centre of London. The mode of pruning ivy adopted by "Q" (p. 9, vol. ii.) is sufficiently plain. There are plenty of summer leaves on it, independent of those on the summer shoots; these therefore may be cut away, and let the others remain to keep the wall well covered. Your question about cuttings for exportation is answered in our reply to "A Colonist."

ANTS (*T. D. P.*).—To get rid of these pests from your brick wall wash over the place with a mixture of gas lime and flowers of sulphur, about half a peck of the first and an ounce of the second to a gallon of water. Spraying them at night with a strong decoction of elder leaves will destroy many of them, but the first will probably be found the most effectual application.

NOBLETHORPE (*Rev. B. Pulteney*).—Noblethorpe Hall, near Barnsley. It is the seat of Mrs. Clarke, to whom Mr. Reid is head gardener.

VINES IN GREENHOUSES (*Dr. L.*).—You will see that your wishes have been complied with.

MELONS IN OPEN AIR (*A. S. C.*).—The address you wish for is given at p. 72 in our 7th Number.

GREENHOUSES (*W. D.*).—We think that you will find all the necessary information in our 28th Number, p. 16, and in our columns to-day. If you require further directions write to us again.

LARVA OF BEES (*A Young Hand*).—It is not unusual to find the grub or larva of bees eat out of the hive at this season. They are the carcasses of those that have died before coming to maturity.

BROWN SCALE (*John Davis*).—Try syringing your plants with water of the temperature of 140°; this will probably not only destroy the scale, but remove the gummy exudation of which you complain. Both evils, we think, arise from your keeping your house too hot and the air too dry.

REMOVING PLANTS AND SHRUBS (*P. S.*).—If you move these now many of them will die, and the remainder will not recover the injury they will sustain for two or three years. We cannot advise you to move them before the end of October. Plant in autumn, and command to grow; plant in spring, and implore to grow; it is a sound axiom.

NAMES OF PLANTS (*An Amateur Subscriber, Kingston*).—We take this opportunity to say, that all specimens sent to us should have the blossom fully open. No. 1, is *Fabiana imbricata*; 2, *Morilla nana*; 3, *Veronica discolor*; 4, *Veronica saxatile*; 5, *Silvia Grahamii*; 6, *Myrica* (species not detectable, their being no bloom); 7, *Sollya heterophylla*; 8, *Echium frutescens*; 9, *Lysimachia cephenum*; 10, *Chorozema ilicifolia*; 11, *Erica vestita*; 13, One of the

Statice; 14, *Erica intermedia* (?); 15, *Westringia rosemariniformis*; 16, *Erica cinerifolia minor* (?); 17, *Phyllica ericoides*; 18, *Phyllica lanceolata*; 20, *Epacris grandiflora*. Nos. 12, 19, and 21, are *Erica*, but too immature to be named from a mere sprig.

VINES IN GREENHOUSES (*Ibid.*).—Mr. Crowley has not published a separate account of his method. You will probably find sufficient information in our columns to-day, and in future numbers.

MUSHRUM BROS (*Ibid.*).—You will find how to make this at p. 70 of our first volume. The droppings should be broken, but not mixed with loam. Put them in alternate layers.

VINEYARD (*A New Recruit*).—Mr. Verbenas, "the leaves of which have become brownish-white," are mildewed, but they will soon grow out. No collection is free from this disease. A slight dusting of sulphur will check it. We cut down all ours that are so affected, and put them in a warmer place for ten days or so, and, as soon as fresh shoots appear, we give liquid manure twice a week.

LIQUID MANURE (*Ibid.*).—Fuchsias, geraniums, and arums will be much benefited by a dose once a week through April, and twice a week in May, and through the summer till they are nearly out of flower. Your cacti will only require it once a fortnight now. When they are growing freely after flowering is the right time for them to have liquid manure, and then once a week. See the way to make it, p. 280, Vol. I. From numerous letters which have reached us, we perceive that there is a general impression among a certain class of amateurs, that liquid manure is a panacea for all the ills which plants are subject to, and that it is not so, however. When we, or our plants, are in ill health, a low diet is more suitable than stimulants. It is only when plants are growing freely, and in good health, that liquid manure should be given them.

ARUMS, &c. (*Ibid.*).—Arums are never potted, or, at least, should not be, when they are in flower. When they are down it is right time. At that time you will find a cluster of young tuber roots on the old root stock; and each of them will make a plant.

CALECOLARIA SOWING (*Ibid.*).—It is too late now to sow calecolaria seeds; early in August or at the end of February are the best times.

SHAMROCK (*A Rector in the West of England*).—It is difficult to say which is really the true shamrock. Those best informed believe it to be the wood sorrel (*oxalis acetosella*). Your plant is a kind of clover or trefoil.

EVERGREEN CREEPERS FOR COLD CONSERVATORY (*Ibid.*).—Pursue the following *evergreen creepers* for the walls of your conservatory, having a n.w. aspect and not heated, and you will have seen a description of some of them last week; others will be noticed hereafter, and your case will be specially referred to. *Habrotaenus fascicularis*, *Solanum jasminoides*, *Cissampelos*, the pinicoid *Jasminum*, *Andromeda*, and *Bignonia jasminoides*. In three years, these, if planted in a rich border, will cover the whole of your north and north-west walls, and give a constant succession of bloom from April to October; and the jasmine, when once established, will probably flower all the winter. We have had an old plant of it in bloom all the winter in our cold house as you say.

POLYANTHUS FLOWERS DESTROYED (*A Constant Reader*).—The only mode of preventing insects, caterpillars, and slugs from injuring flowers, leaves, or roots, is to look vigilantly after them, and destroy them. See Mr. Barnes' useful recipe for eradicating slugs, p. 16. Your polyanthus flowers were eaten by the slugs, no doubt.

GLADIOLUS CARDINALIS (*Ibid.*).—The leaves of this withering shew there is something very wrong at the roots, or the bulbs were exhausted before they were planted. Remove part of the soil and examine the bulbs; perhaps the wireworms injured them.

SPRIGGING SAVOY (*Clericus*).—We are not aware that any one has the seed of this, except Mr. Barnes.

COLOURS OF FLOWERS (*Color*).—We cannot aid you better than by inserting this extract from your note—"Pray call the attention of gardeners, nurserymen, and others, to the subject of colours in flowers, and do request they will be particular in giving the *true* colours. I seldom see a list of flowers, in which the colours are described, that there are not mistakes; indeed, I am inclined to think many people have little or no idea of colour. I know one gentleman who can hardly distinguish blue from brown. I was looking, a few days ago, over Mr. Paxton's *Botanical Dictionary*, and under *Campanula punctata*, it was described as white; now, I never saw this variety *white* in my life. Its colour is pale yellow, spotted with brown. *Delphinium Triale* is given as blue. I grow the plant, but I never saw a blue one. Several others I could name, where similar mistakes are made."

BONES (*S. R.*).—The refuse bones from your larder cannot be better employed as a manure, either for your flower or kitchen-garden, than by dissolving them in sulphuric acid, as we have directed at p. 62 of our first volume. You cannot have the bones reduced to powder, probably, but you can have them broken into pieces with a hammer, before putting them into the tub to be dissolved.

FENNEL (*A Subscriber*).—If by this name you intend Fennel, or Azorean Fennel, we advise you not to waste your time about it. It scarcely ever succeeds in this country, the flavour is disagreeable to most people, and in Italy, where it is chiefly cultivated, it is only used in salads. Nevertheless, if you wish for information, we will give it, if you will write to us again. It requires much care.

POTATO PLANTING (*H. I. B.*).—You cannot expect to have any good potatoes from seed to be now inserted, nor, let us add, do you deserve to have any, after all that has been urged and groined in favour of cutting plants. However, you cannot do better, as you cannot drain your heavy soil, than by raising it into "lazy-beds" twelve feet wide, but make your drains between them three feet deep and two feet wide. It is the worst of soil for potatoes. Ash-leaved kidneys are the best kind you can now plant, as they require less time than most others in which to complete their growth. We advise you to put no manure on. Lime and decayed tan may be of some service, by making the ground more open. Cover it about two inches thick with the mixture.

FLESHY-LEAVED PLANTS (*W. P., Highworth*).—*Opuntia tomentosa*, *Opuntia microdasys*, *Euphorbia polygonifolia*, and *Euphorbia spinescens*, are all worthy of your attention. You will succeed in growing succulent plants if you follow the directions given in our columns to-day by Mr. Wakefield.

HEATING A VINEY (*A Tenant-Farmer and an Old Man*).—Let us advise you to have your vines repaired, making them according to the directions given at p. 121 of our first volume; it will answer your purpose much better than hot water, as you do not start your vines until March. Why do you persist in the bad practice of taking off the sashes during the winter? If you persist in wishing for hot water heating, write to us again.

STORING POTATOES (*W. P., Lyme Regis*).—The best of all modes is to store them away immediately they are taken up, in a dry cool shed, placing them in alternate layers with earth; a layer of potatoes only one deep, and then a layer of earth two inches thick. Never mind about the earth being moist. If potatoes are left in the ground it will be beneficial to grow cabbages between the rows, these cabbages would help to keep them from freezing.

MANGOLD WURTZEL (*Ibid.*).—This, and all other food for pigs, is most nutritious if boiled before it is given to them. It digests more easily. See p. 186 of our first volume.

GARREN DRILLS (*Ibid.*).—We know of none that are cheap. We are promised the results of some experiments made with these implements.

TRANSPLANTING SWEET TURNIPS (*Ibid.*).—See "Allotment Gardening" in our columns to-day.

CARROT STORING (*Ibid.*).—We are well pleased to find that you have tried storing carrots after cutting off their tops, as directed by us at p. 12 of vol. 1, and that you think it has been worth to you already "the cost of THE COTTAGE GARDENER for one year." We will give you some information about transplanting onions.

EARLY PLANTING (*Ibid.*).—*Count Colclough*.—Never mind your neighbours laughing at you; all England's experience is in favour of early planting. The "bright worms" attacking your sets are a species of the snake millipedes, called by entomologists *Julus complanatus* (*Polydesmus* of Latreille and others). It will attack late planted potatoes just as much as those planted early, and there is some doubt whether it attacks any root until after the root has begun to decay. Be this as it may, open the ground so as to get as near to your potato sets as you can, and sprinkle quicklime over these tolerably thick. This will destroy or drive away the snake millipedes.

CALENDAR FOR MAY.

GREENHOUSE.

AIR is now so essential that potted plants of harder kinds may be turned to outside, and at first placed in a sheltered place. **ANNUALS** (tender) from frames, bring in when fit for their flowering-pots. **CUTTINGS** of almost all plants will now root. **EMBRAY**, stir the surface in pots and boxes, and add a little fresh on the top. **LEAVES**, keep clean with the syringe, free from insects by tobacco smoke, and remove all dead ones as they appear. **ORANGE STOCKS**: sow lemon seeds to procure fit stocks to graft and march the orange on; if you have lemon trees in pots, they may be injured or grafted. **PRUNING**: spring Heaths and Epacris just out of flower prune close in. For plants in general, pruning must now consist of stopping leading and rampant shoots to form a regular head. **PELAGONICUMS** (*Geraniums*) showing flower-buds, water with liquid manure alternately with rain water. **SHITTING** into larger pots must still go on. **SUCCESSOR PLANTS**, as aloe, cactus, and others, top-dress and move out by the end of the month. **WATER**: regularity in watering is more essential this month than at any other time. Give it abundantly over the leaves on the afternoons of fine days. **WINDROWS**, daisies, and similar, open daily, and during mild nights, to harden the plants before moving out.

As a **GENERAL RULE**, when plants are "drawing up" the place is too confined for them, and they require more air and light. All the **FORCED BULBS** now planted in the soil require abundance of water to ripen and sustain their growth. Sprinkle to be thinned out as shifted and inured to the state they are intended for.

D. BRATON.

FLOWER GARDEN.

ANEMONES, take up, and separate off as leaves decay. **ANNUALS** (Tender), remove into another hothed; pot, if not done in April; water gently, and give air as much as possible; pick out April sown. **ANTHRIMUS**, take up, and separate off as leaves decay; remove offsets with roots, detach and plant, three in a pot; seedlings keep in the shade; water moderately in dry weather; auriculas to seed should be kept from wet. **AVONINGS**, or other shelter, continue over beds of thimble. **BULBOTS**, Roots, generally, directly leave decay, take up and store; seedlings shade through midday; (Autumn blooming), plant again after separating offsets, or else store until end of July. **CARNATIONS**, remove side buds from flower stems; shade from meridian sun; water in dry weather; put sticks to and tie stalks; sow. **DARLINS**, plant in rows from greenhouse, c. Dress the borders, &c., almost daily. **EVERGREENS** may be planted, h. **FIBROUS-ROOTED** Perennials, propagate by cuttings of young flower stalks. **FLOWERING PLANTS** require staking, &c. **FUSCHIA**, dried roots

may be planted. **GRASS**, mow and roll, weekly. **GRAVEL**, roll, weekly. **HOBING** cannot be too frequent. **HYACINTHS**, take up and store as leaves decay. **MICROSETTE**, sow for succession, h. **PERENNIALS**, sow, b.; propagate by slips and cuttings. **POLYANTHUSES**, part, if not done in April; shade, and throughout the summer; sunshine destroys them; sow seed of: **HOES**, search for weeds, on, and destroy them; peg down roses in groups to keep them low; roses in pots may be planted out. **STAKE** and tie up plants; seedlings thin. **TELEPS**, remove seed-pods; take up and store as leaves decay. **TEU** may be laid, and grass seed sown, b.; water frequently; grass buds plant in borders; flowers decay. **WATERING**, attend to in dry weather, especially to plants newly removed. At the commencement of this month, during showery weather, plant cuttings of *Double Wallflowers*, and *Pansies*; and divide the roots of *Neopeltaria* and *Russian Violets*, transplanting in preparation for putting to flower in winter. *Half-hardy plants* may now be brought from the greenhouse and other winter shelters, and distributed in the borders. Mild moist weather is most suitable for this work. The more tender climbing annuals, such as *Trumpet aduncum* and *Carolinensis major*, should not be planted until the end of the month. Put in slips of fine double Hollyhocks, and double White and Purple Rokeets, under hand-glasses, or near a wall on the north side. **CUTTINGS** of China roses plant in a shady place.

T. APPLEBY.

ORCHARD.

Disband, stop, and commence training all **WALL** or **ESPALEIR** **FRUIT TREES** through the month. Grafted trees of former seasons, continue to remove useless shoots from. **GRAFTED TREES** of the present spring, if growing, remove clay and loosen the bandages slightly at the end of the month. **BUDDED TREES** of last year, remove useless shoots from. **SWELLING FRUIT** of Appricots, Peaches, and Nectarines, thin out, highly at first. **GOOSEBERRIES**, watch the enterrail, dust them if infested with the dew fly on them with the powder of belladonna, a decoction of the common foxglove, or also said to destroy them. **BLACK CURRANTS**, water heavily if dry, c. **STRAWBERRIES**, water well towards the end; also clean thoroughly from weeds, and place straw or grass for the fruit at the end of month. **VINES**, disband, stop, &c., c. **Figs**, disband, c. **RASPBERRIES**, thin away weak suckers, c. **CHERRIES**, watch for the black fly towards the end, and use tobacco-juice, half-pound of shag to the gallon. **PLUMS TRAINED**, treat same as cherries for the fly. **MULDING**, see that all newly or newly planted trees are well mulched, three inches thick. **WATERING**, let all fresh planted, or heavy bearing trees be well watered towards the end of dry. **BLIGHTS**, watch the development of insects on every species of fruit, and act according to the advice in **THE COTTAGE GARDENER** in back numbers: remember that little more than half-a-pound of shag tobacco to a gallon of water will destroy every species of aphides. **WILDS**, remove or dress, and salt with care if weedy. **BORDERS**, clean and dress all borders. **Now** or otherwise keep down gross herbage in the ordinary orchard.

R. EBBINGTON.

KITCHEN GARDEN.

ANGELICA, sow. **ARTICHOKES**, plant, h. clean beds. **ASPAGUS**, keep clean; apply liquid manure. **BALM**, plant. **BASIL**, plant out. **BEANS**, sow, h. pot. **BEET** (Red), thin; (White and Green), sow. **BORAGE**, sow. **BORCULO**, sow, b.; prick out; plant out; h. leaving for seed. **BROCCOLI**, h. b. prick out; plant out. **BROCCOLI**, sow and plant. **CABBAGES**, sow; plant; earth; sow. **SICUM**, plant out. **CARROTS**, sow; thin. **CARROONS**, sow, b. **CARLIPOWERS**, take glasses from; sow, c. **CELERY**, sow, b.; prick out; plant out; water; leave for seed. **CHAMOMILE**, plant. **CHERVIL**, sow; leave for seed. **CHIVES**, plant. **CORIANDEIR**, sow; leave for seed. **CRESS** (American), sow; (Water), plant. **CROPS**, failed, replace forthwith. **CUCUMBERS**, prick out; plant out; attend to forcing. **DILL**, sow, and plant. **DENG**, for hotbeds; prepare. **EARTHING-UP**, attend to. **ENIDIVE**, sow, c.; leave for seed. **FENNEL**, sow and plant. **HOTBEDS**, attend to; linings, &c. **HYSSOP**, sow and plant. **KALE** (Sage), attend to; blanching, &c. **KIDNEY BEANS** (dwarf), sow, b.; transplant from hotbeds; (runners), sow. **LAVENDER**, plant. **LEKKS**, sow; thin; leave for seed. **LETTUCES**, sow; plant out; tie up. **MARIGOLDS**, sow. **MAZGARONS**, sow and plant. **MARIGOLDS**, h. b. prick out; ridge out; attend to forcing; thin laterals. **MINT**, plant. **MUSK ROOM BEES**, make, h.; attend to those producing. **MUSTARD** and **CRESS**, sow; leave for seed. **NASTURTIUMS**, sow, h. **ONIONS**, weed, &c.; sow for planting again in spring; (Welsh), leave for seed. **PARSLEY**, sow; leave for seed; (Hamburg), thin. **PASPINIS**, thin, &c. **PEARS**, sow; top those blooming. **PENNYROSE**, plant. **POMPIONS**, sow, h.; ridge out, h. **POTATOES**, plant, b.; h. **PURSLANE**, sow; leave for seed. **RABBITES**, sow; leave for seed. **RARE**, for salading, sow; (Edible rooted), sow, c. **ROSEMARY**, plant. **RUPE**, plant. **SAGE**, plant. **SALSAFY**, thin, &c. **SALVADY**, sow and plant. **SCHVARS**, sow, b.; plant; prick out. **SCORZONERA**, thin, &c. **SORRELS**, sow and plant. **SPINACH**, sow; thin; leave for seed. **TANSY** and **TARRAGON**, plant. **THYME**, sow and plant. **TOMATOES**, plant out. **TURNIPS**, sow; thin; leave for seed. **TURNIP CABBAGE**, sow. **WATERING**, attend to, in dry weather. **WEEDS**, destroy as they appear.

G. W. J.

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WEEKLY CALENDAR.

M D	W D	MAY 3—9, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
3	Th.	Invent. of the Cross. Yell. Wagtail arrives.	Poot's Narcissus.	30 a. 4	24 a. 7	3 14	11	3 17	123
4	F.	Botanical Soc. Meeting. Pettychaps heard.	Stock Gillyflower.	28	25	3 38	12	3 24	124
5	S.	Latticed Heath Moth seen.	Apple-tree.	26	27	4 2	13	3 29	125
6	Sun.	4 SUN. AFT. EASTER. Greenfinch builds.	Globe-flower.	24	28	4 26	14	3 35	126
7	M.	Long-eared Bat seen. heard.	Asiatic Globe-flower.	23	30	rises	☉	3 39	127
8	Tu.	Easter Term ends. Turtle-Dove	Lily of the Valley.	21	32	8 a. 41	16	3 43	128
9	W.	Burying Beetle seen.	Solomon's Seal.	19	33	9 37	17	3 47	129

INVENTION OF THE CROSS.—We know not why this anniversary should be retained in our almanacs, as nothing more is intended by it than to point out the day on which Roman Catholics believe that the Empress Helena, mother of Constantine the Great, discovered the cross on which our Saviour was crucified.

GLOBE-FLOWER (*Trollius Europæus*).—As in the south of England the "May blossoms," or flowers of the hawthorn, are considered emblematic of the season, so in Scotland, Westmorland, and other Border counties, is this flower, known there as the *lucken gowan*, considered especially as the May flower. It is the festival flower of those parts, and many and joyous are the parties assembled at this season to go and gather "the gowans gay."

PHENOLOGY OF THE SEASON.—The most striking event of the season is the gradual development of the leaves of our deciduous trees and shrubs. The "young green" tints of spring are indeed highly characteristic, but they are not monotonous in colour; and, although green predominates, yet, as we look out from our library-window, we can see many beautiful varieties of that same green, and other hues blending and harmonizing with it. The dark glossy upper surface of the *Pyrus japonica's* leaf, and its dull paler surface beneath, looking as if nature had united the leaf of the camellia with that of the apple to form a third; the green, shot with red, of the young *cherry* leaves, and so polished as if they were newly varnished for their first appearance; the grass-green *sweetbrier* leaves, the slightly darker *peach* leaf, with one stain of carmine upon its young point, and the yellow-green of the *double-blossomed crab*, are all striking before us, and all telling of that wondrous and beneficent

variety in unity which characterizes the universal handiwork of the Creator. Various beyond enumeration are these colours, and, therefore, never monotonous; yet green prevails, and this above all other colours is that which is most grateful to the eye, and on which it can look longest without fatigue. The kindness of God is here apparent, for he who "clothes the grass of the field," if he had been ever careless of man's comfort, might have permitted that general dress of nature to have been painfully crimson or drearily purple; for plants with leaves of this colour are to be found, and such colour is, therefore, not inconsistent with vegetation. We need refer only to the red beet, the under side of the cyclamen, and the bracted leaves of the scarlet barberry (*Barbula coccinea*). The utility to man of the leaves of plants is no less than their beauty is gratifying. The senna is only one plant out of hundreds that have healing in their leaves; those of the tea-plant give a beverage that is the quiet cheerer of all the homes of England; those of the mint and the sage are examples of others affording a grateful seasoning to our food; and the sweetbrier and veronica are examples, as common, of those which gratify another of our senses. Turning our attention to size, we find that the smooth budcock (*Arctium lappæ*) has the largest leaf of our native plants, it being often 30 inches long and 18 broad; but this is illipitum when compared with the leaf of the Talipot-tree (*Corypha umbroscifera*): this native of Ceylon has a leaf 11 feet long and 16 feet broad in its widest part. Being about 40 feet in circumference, this leaf forms a most capacious and efficient shelter either from rain or from the sun's rays. On some future occasion, we must consider the importance of the leaf to the plant itself.

INSECTS.—Every gardener must have observed the leaves of his pear-trees, especially those of the Chaumontelle, blotched with dark brown spots in the autumn. We had a standard tree of this variety in Essex that annually was thus injured, whilst a Swan's Egg and an Easter Bergamot close by were comparatively untouched. These brown blotches are caused by the caterpillars, or grubs, of a very small moth called the Pear-tree Blister-moth (*Tinea Clerckella*). The caterpillars of this moth belong to a family called "miners," on account of their working beneath the skin of the leaves they attack, feeding only on their pulp. The red spots often seen on the leaves of the vine and turnip are caused by grubs of this habit. On opening one of the brown blisters on the pear-tree leaf, a small active shining grub will be found, fleshy, yellowish white, hairy, and with 16 black feet; the head and a line down the back are brown. When thus disturbed, the grub lets itself down towards the ground by a silken thread. It forms its cocoon in the earth, or beneath some withered leaf upon its surface. From this cocoon, the moth comes forth chiefly during May, though it has been observed at the beginning of April. In our drawing, the grub and moth are represented of their natural size, and the moth magnified. The upper wings are orange, with a silvery spot on its outer edge, and a mingling of black, lilac, and pink on the inner angle; an orange feathery mark and four black lines mark their upper surface, and they have a white fringe around them. The hind wings are narrow, lead-coloured, and fringed. Mr. Knight's pear-trees were so injured by their grubs that he, at one time, resolved to remove them. The best mode of prevention seems to be to collect the leaves, and to pare off about an inch of the surface round each tree in the autumn, and to burn them.

MAY.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
3 Highest & lowest temp.	Rain.	Fine.	Showery.	Fine.	Cloudy.	Cloudy.	Stormy.	Fine.
4	50°—43°	71°—46°	66°—44°	65°—45°	59°—37°	70°—53°	53°—40°	72°—33°
5	Fine.	Fine.	Fine.	Cloudy.	Cloudy.	Cloudy.	Showery.	Fine.
6	69°—50°	65°—33°	66°—45°	59°—36°	66°—46°	56°—36°	56°—36°	73°—38°
7	Showery.	Cloudy.	Rain.	Fine.	Fine.	Showery.	Cloudy.	Fine.
8	62°—40°	63°—46°	63°—42°	72°—43°	58°—37°	66°—45°	66°—31°	74°—36°
9	Showery.	Showery.	Rain.	Fine.	Stormy.	55°—35°	63°—43°	78°—38°
10	65°—35°	60°—32°	53°—39°	72°—36°	55°—37°	62°—40°	62°—40°	78°—38°
11	Cloudy.	Rain.	Showery.	Fine.	Showery.	Fine.	Showery.	Fine.
12	60°—47°	63°—46°	59°—29°	70°—43°	56°—37°	66°—43°	65°—50°	78°—37°
13	Showery.	Showery.	Rain.	Fine.	Showery.	Fine.	Rain.	Fine.
14	68°—42°	68°—41°	49°—42°	70°—44°	52°—34°	69°—43°	66°—48°	76°—36°
15	Cloudy.	Stormy.	Showery.	Fine.	Cloudy.	Fine.	Cloudy.	Fine.
16	65°—50°	60°—32°	54°—39°	73°—49°	59°—38°	72°—49°	65°—45°	78°—38°

We noticed briefly, in our last Number, that the mildew, which for the last three or four years has been such a scourge to the vines in Kent and the neighbourhood of London, has again made its appearance in the same vicinity. We have had leaves from vineries at Walthamstow, vineries, where the entire foliage had been destroyed once this season by the application of the fumes of burning sulphur,

but the mildew is again strong upon them, and affording evidence that the fungus, which is the disease, is capable of resisting agents fatal to the leaves on which it preys.

We have examined the mildew by the aid of a very powerful microscope, and detected, in various stages of growth, the minute parasitical fungus to which Mr. Berkley has given the name of *Oidium*

Tuckeri, but which might, with more intelligence in its title, have been called *Oidium vitis*, or Egg-fungus of the vine.

The generic name, *Oidium*, alludes to the egg-form of its spores or seed vessels; and is still further appropriate from their, and all the other parts of the fungus, having a pearly appearance, like that of the lightly-boiled white of an egg.

The mildew makes its first appearance on the underside of the vine's leaves, probably because that side has least light and most moisture—circumstances favourable to the growth of all the fungi. By degrees it spreads, invades the upper surface of the leaves, and eventually covers the fruit also. To the naked eye it has a mealy appearance, like the mark left upon a dark cloth by contact with a floury hand, but when viewed through the microscope there appear pearly threads running, like minute sprigs of coral, over the surface of the leaf; and from the angles of these sprigs arise little oval bodies, which are the seed vessels.

Of this fungus's tenacity of life we have already given one instance, and we have witnessed another in the fact that after some of the vine's leaves sent to us had been allowed to become dry and dead by exposure to the air in a warm room, yet the fungus upon them survived, and resumed its pearly appearance after being moistened with water for a few minutes.

Knowing the powerfully destructive effect produced upon the fungus tribe by common salt, we instituted some experiments to ascertain its effect upon this *Oidium*. We all know that the common mushroom, sprinkled over with salt, dissolves away into a black liquid, which is the chief ingredient of catsup; and we also know that a solution of common salt sprinkled liberally over the stems of mildewed wheat destroys the fungus, *Puccinia graminis*, which is there established. Guided by these facts, we took a small piece of a vine-leaf thickly infested with the *Oidium*, and repeatedly agitated it in a solution of common salt—the solution being of the strength of sea-water, or four ounces of salt to the gallon. By degrees all the *Oidium* disappeared; and, after allowing the solution to remain on the leaf fragment for about two hours, scarcely a particle either of the pearly mycelium (the connecting sprig of the fungus) or of its seed vessels could be detected by the microscope, though white lines and films, apparently their empty cuticles or skins, remained.

Now, a gardener could not submit the leaves of his vines to such an agitation in salt water as that to which we subjected the fragment above named, but he could frequently and abundantly syringe them, or he could employ a woman to sponge with the saline solution every leaf shewing a symptom of the disease; and in either case, after allowing the solution to remain on the leaves for a few hours, he

should syringe the whole plentifully with water only. Both the water and the solution should be of the same temperature as that of the vinery. To this treatment we would draw the consideration of our gardening friends, and recommend it to their earnest and assiduous attention. Fortunately, the only vine we have under glass has not a spot of mildew upon it, nor have any of the vines in our neighbourhood, therefore we cannot carry our experiments further; but we can offer some few additional facts for the guidance of our readers.

Very few plants are injured by a weak solution of salt remaining for a limited time upon their leaves; and the following have been the results of our experiments with water containing four ounces per gallon in solution. Our experiments were tried late in the afternoon of a cloudy and rainy day, such, we considered, being most favourable for all operations requiring a plant's leaves to be wetted. We dipped leaves, whilst still attached to the vine, into the above solution, and left as much of the solution upon them as would cling to them for one, three, and fifteen hours. At the end of those hours respectively, we washed the leaves in clear water, and not one of them suffered any injury. They are now growing as freely as any of the other leaves which have not been dipped into the saline solution.

Sustained by these experiments, we recommend to all growers of vines attacked by the *oidium* to try the effect of a saline solution upon their mildewed vines. It will do no harm, at all events; and if they go by the following rules, we incline to the opinion that it will either very effectually check, or entirely remove, the disease.

1. Use a solution not stronger than 4 ozs. to the gallon; and let the temperature of that solution be the same as the temperature of the vinery.
2. Apply the solution about six in the afternoon; let it remain on the leaves for twelve hours; then syringe it off with plain water, also of the temperature of the vinery.
3. Repeat the application every evening, followed by as regular a syringing with water, until the disease is overcome, or the application is shewn to be of no avail.
4. Sprinkle three or four pounds of salt over the surface of the border in which the roots of the vine are growing; for every application aiding to impart salt to its sap is inimical to the fungus tribe.

It will not be useless to inform our readers that this mildew is communicable by contact; for in many cases the plague may be kept within a narrow compass, if not entirely stayed, by picking off each leaf as soon as the leprous spot is perceived upon it. Nor is it communicable only from one vine leaf to another, but from the vine to other plants. Thus the Rev. M. J. Berkley relates that some healthy chrysanthemums, placed under a vine infested with the *oidium*, were all covered with the same fungus in

a few days.* All plants, therefore, should be instantly removed from a viney in which the disease makes its appearance. Every diseased leaf, and all the refuse from the infected viney, should be burnt.

It is but just to observe, that the first public notice taken of this disease was by a very intelligent writer from the neighbourhood of Margate, whose letter, signed "Progressionist," appeared in the *Gardener's Journal* in October, 1847. After very correctly pointing out the parasitical nature of the disease, and stating that it visited his viney during the two previous years, he observes, upon its more advanced state, that its effects upon the fruit are to produce a swelling and a cracking, accompanied by a very strong disagreeable smell, and ending in the grapes becoming a mass of rottenness. Another observer describes the smell as being like that of old, mouldy, decayed wood.

* The same fungus has been found upon cinerarias.—*Gard. Journal*, 1847, 212.

THE FRUIT-GARDEN.

STOPPING AND DISBUDDING.—We have now arrived at that period when the most vigilant attention is necessary, not only with one kind of fruit, but with most of those we cultivate. The course we are about to recommend is not only requisite as tending to improve the character of the fruit in the *present season*, but the welfare and stability of the tree in succeeding years. Although, at first sight, the process may appear troublesome or expensive, it is, in reality, an economical procedure in the end. A trained tree, started from the first on good principles, both as regards root and branch, will, after a three years' course, not require above half the labour which will have to be bestowed upon one planted and trained without system. Nor is this all; for the neglected tree will soon become absolutely uncontrollable, or only to be controlled at the sacrifice of a large portion of valuable branches, which had taken years to form. Thus, it will be easily seen where the economy of the subject really rests. In addition to disbudding at this period (the principles of which we discussed in a previous Number), we have now to point to, and explain, the principles of what is termed, by gardeners, "stopping," and, by some amateurs and others, "pinching." Stopping or pinching, however, is capable of classification.

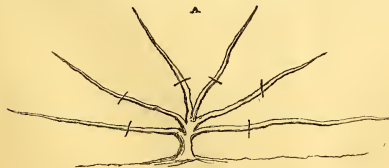
Stopping is practised, in general, for one or other of the following reasons, or for any two or more of them in combination. *First*, to check over-luxuriant shoots. *Secondly*, to concentrate the sap in a given shoot. *Thirdly*, to give room to other competing shoots. *Fourthly*, to check a too late root action.

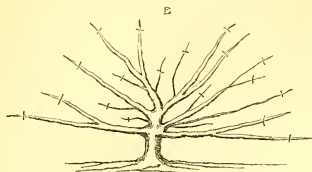
Our business, in this calendar, will be to deal with the first, as being peculiarly appropriate to the season.

The Peach and Nectarine.—After a slight disbudding, it will be found, on examining healthy peach or nectarine trees, that certain gross-looking shoots thrust themselves forth from various portions of the tree, more especially from young and over-excited subjects. This case is, in general, caused by close pruning, which has become necessary in order to compel the rising tree so to throw out branches as that provision may be made for every portion of the wall being covered in a permanent and, of course, profitable way. Such young trees possess, in general, a violent root action; and by removing young shoots which would have constituted legitimate channels for the sap, the root becomes master of the branches; or, in other words, the balance which nature had provided is temporarily destroyed. We very frequently, notwithstanding, find older and bearing trees producing these gross shoots; these are called by some gardeners, "watery wood," and by the French gardeners, "gourmands" (gluttons). They may be found on bearing trees, as before observed, as well as on younger ones; and this may, at first sight, appear strange; for it might be considered that the bearing propensities of the other trees would prevent such an occurrence. It is, however, we believe, neither more nor less than one of those efforts of nature, which may be frequently observed in other subjects besides the peach—an extra effort to prevent premature decay. Such shoots very often spring forth just below a branch which has borne a heavy crop of fruit, and which has thereby become somewhat exhausted; in which case there can be little doubt that some degree of constriction, or partial shrinking of the vessels, has taken place. These gluttons, then, if suffered to remain unstopped, will, in most cases, cut away the supplies from the old bearing shoots, and lead to the necessity of their being cut off in a very short period: a process fraught with danger to the stability of the tree, and which, in all cases, may be prevented by the anticipatory course we are about to recommend.

To revert to the case of young peach-trees: how often do we see them with shoots some 3 or 4 feet long in the beginning of autumn; and of what use is this amazing length of "rod?" The tree, too, it may be, has only four or five such; and if the proprietor asks an opinion of a practical pruner, his advice is, especially if he be "one of the olden time," to cut them all back to two or three eyes. The proprietor, of course, wonders how his wall is to be covered by such a procedure. He is, however, told that it must be so; and as he is not usually armed with arguments to withstand blue-apron authority, he deems it expedient to give way. Without stopping to inquire whether all, or only a portion, of such willow-looking rods should be cut back in such a case, we may just draw attention to what this tree might have been under proper culture. We subjoin a diagram, which will, after a minute's consideration, illustrate the matter.

A, shows the gross young peach or nectarine in October, having rambed unstopped through the summer. B, shews what the same would be in October, if stopped in May. The cross marks denote the points at which it would become necessary to prune them in the succeeding winter.





On a careful examination of the two, which are, we think, tolerably faithful, it will be seen that a whole twelvemonth will be gained by the timely stopping of gross young trees. Nor is this all: the unstopped one will have acquired such a power of root, that, after pruning close, another set of these "basket rods" may be expected in the succeeding year, to meet with a similar fate in their turn, unless severe root pruning be had recourse to.

We will now advert to the second case, viz., the production of occasional gross shoots, or "robbers," by established bearing trees. These, as before observed, if left unpruned, would continually form out fresh channels for the principal supply of sap from the roots, to the detriment—indeed, premature decay—of the true bearing wood: they would, moreover, in their turn, be cheated out of their supplies by other gluttonous shoots, and so on until the tree would become worn out, partly by exhaustion, and partly by the severe amputations which would, in the course of time, become necessary.

Let us, then, impress on the minds of all those who are taking their first steps in peach and nectarine culture, not only the propriety, but the necessity, of pinching off betimes the points—called "stopping"—of all those gross shoots, which show a disposition to shoot into lateral branches. Where such a disposition exists, it will generally manifest itself by the time they are about six inches in length, which will occur, in the main, from the beginning of May until the beginning of June; after which, stopping of another kind, and for other reasons, will commence; of which we will treat in due course.

APRICOT THINNING OUT, for tarts, will shortly commence: let it be done with caution, and progressively. In no case thin away the forward and more bold-looking fruit, but merely cripples, or those which are lodged in the interior of clusters. They cannot, of course, be situated equally all over the tree; but could they be so placed, we consider that every six inches square ought to carry a fine fruit, and we speak within bounds: nevertheless, do not thin thus far for some time. If the tree is likely to be oppressed with its load, apply some guano-water, or other clarified liquid manure, according to former directions: this, poured on a coating of mulch, will do much good, and will save the energies of the tree until the final thinning.

BEWARE OF THE CATERPILLAR in the leaf of wall-trees, but especially of the apricot. As soon as any of the leaves appear rolled up, let them be examined and uncoiled. A little green maggot will be found, and the only way is to carefully open the clustered leaves, without wounding them, and find the rogues, which may then be readily destroyed. The eggs

hatch successively for several weeks; the trees, therefore, should be run over once a week, if possible.*

STRAWBERRIES.—Once more let them be weeded through, for no weeds may be allowed to smother the fruit, which requires all our sunlight and a free circulation of air. The first runners may be cut away betimes, and litter or straw introduced among the plants on the heels of this operation, in order to keep the fruit clean. Above all, use abundance of water in dry weather to those in blossom: no good crop can be guaranteed without a very liberal supply.

BLACK CURRANTS.—If the weather should prove dry, a good watering will prove of immense benefit as soon as the bushes are out of blossom: this would save many a crop which is otherwise lost; and we would particularly advise the cottager to let his children attend to them. It is of no use giving the water grudgingly; it is almost impossible to give them too much, on free and open soils, at this period.

RASPBERRIES.—The suckers will be soon shooting up rapidly, and it is a good practice to thin them out betimes, leaving about five or six to each stool. If the stools are excessively strong, some of the very strongest and all the weak ones may be removed. If the stools are weakly, take away the very weakest, and only leave three or four.

As *miscellaneous work*, we would point to the necessity of watchfulness over orchard affairs in general, especially as to the depredations of insects. Hand-picking must be resorted to; and here again the cottager's children will be found as useful as grown-up labourers. We much fear that, after so ungenial a spring, our prospects for the summer will not prove very flattering.

R. ERRINGTON.

THE FLOWER-GARDEN.

ROSES FOR BEDDING IN GROUPS (*continued*).—In the two preceding Numbers we described the most proper and best kinds of China, Tea-scented, Noisette, and Bourbon roses for bedding out in groups, one kind in each bed. This is a way that displays the beauty of each kind of rose to the greatest advantage. We have seen dark China roses planted in a bed, and then a wire trellis placed over it, raised about six inches from the ground in the centre, and brought gradually down to the grass at the edge of the bed. To this trellis the branches of the roses as they grew were tied down; in the course of a short time the ends of each shoot turned upwards, and produced abundance of roses. The bed then presented the appearance of a large bouquet of those splendid richly-coloured flowers, forming a truly magnificent spectacle. We strongly recommend this method to our readers, and assure them, if they give it a trial, having the soil right, the plants strong, and a moderately fine season, with the requisite attention to tying down, weeding and watering, the display of beautiful flowers will be agreeably surprising. We shall this week proceed to give a list of a class or two more of these beautiful flowers, commencing with the

PERPETUAL ROSES SUITABLE FOR BEDDING.

White.—Perpetual white moss. It is a somewhat singular fact that this beautiful autumnal rose is the only clear white one in this class, the darker colours seeming greatly to preponderate. *Yellow*.—It is equally extraordinary that there are no yellow perpetual roses. *Rose colour*.—Celestina, Comte d'Egmont. *Scented*.—None strictly

* These caterpillars are the progeny of the narrow-winged Red Bar moth (*Pedicia angustiorana* of some, and *Tortrix angustiorana* of others).

of this colour. *Crimson*.—Lee's *Crimson* or *Rose du Roi*, Louis Buonaparte, Madame Laffay, Dr. Marx. *Dark Crimson*.—Louis Philippe, Mogador, Antinous, Edward Jesse.

This class of roses is very rich in the two last mentioned colours. Any of the kinds named will answer admirably to plant in beds; the collector may choose which he pleases, and he is sure to obtain a rich coloured, very double, and free-flowering rose.

AUSTRIAN ROSES.—*Persian Yellow*.—This is the very finest of hardy yellow roses; it is of a rich orange yellow, very full, large, and superb; it opens its flowers much better than the yellow Noisette, and is altogether a very desirable rose; it is also a free bloomer, and has a neat foliage, with the scent of the sweetbrier. To succeed in growing and blooming it well you must place it in a good loam, mixed with peat and leaf-mould. In pruning, all that is required is to thin out the shoots pretty freely, and not shorten in the remainder, but peg them down to the ground their full length, or very nearly so; if the shoots are very long and rather weak, you may take off four or five buds from the end. By this method of pruning, each bud will break and produce flowers on short upright shoots, nearly the entire length of each of the long shoots; the bed then will be truly gorgeous.

HARDY HEATHS.—This is a tribe of plants of neat habit; several of them are of low growth, and, consequently, are very suitable for small gardens. We were much pleased lately by seeing a bed of the early-flowering heath (*Erica herbacea*) in full bloom. We consider they are not half so much grown as they deserve to be; like the greenhouse species, they are always pretty, whether in flower or not. We shall devote a few lines to giving a list of the species, their varieties, and the culture they require to make them ornamental, and show them off to the best advantage.

LIST OF HARDY HEATHS.

- Erica australis* (Southern heath), 3 ft., upright grower.
 " *cineræa*, (scarlet, grey-leaved h.), 1 ft.
 " *alba*, (white, grey-leaved h.), low growth.
 " *atropurpurea*, (purple, grey-leaved h.) 6 in.
 " *ciliaris*, (fringed h.), straggling growth, 1½ ft.
 " *herbacea*, or *carnea*, (flesh-coloured h.), low growth, bushy,
 " *Mediterranea*, (Mediterranean h.), tall, 3 ft.
 " *multiflora*, (many-flowered h.), low growth, 9 in.
 " *alba*, (white, many-flowered h.)
 " *stricta*, (upright h.), tall growth, 1½ ft.
 " *ramulosa*, (small branching h.), tall, 2 ft.
 " *rubra*, (red, small branching h.), 1 ft.
 " *tetralix*, (four-leaved h.), low growth, 6 in.
 " *rubra*, (red, four-leaved h.), low growth, 6 in.
 " *alba*, (white, four-leaved h.), low growth, 6 in.
 " *variegata alba*, (white, common h.), middling, 1 ft.
 " *aurea*, (golden, common h.), middling, 1 ft.
 " *latea*, (yellow, common h.), middling, 1 ft.
 " *pleia*, (double-flowered, common h.)
 " *rubra*, (red, common h.)

SOIL.—Hardy heaths require a sandy peat soil; this, in some localities, may be had in any quantity. They will grow in bog soil, especially *E. tetralix*, provided it be mixed with sand, and is well broken up and pulverized for several months previously to using; if, however, the dry sandy peat soil can be had, it is much the best. The place to look for it is where the wild heath thrives abundantly; it is generally in such places mixed naturally with white sharp sand, and is then in the best condition for the purpose. Clear away the heath, wild grasses, and other weeds from the surface, and have it carted home. Empty the common soil out of your bed about six inches deep, then wheel in the heath-mould, and with your spade break it into pieces, making it moderately fine, especially on the surface; let the soil on the bed be raised a little in the centre, gradually sloping to the edge. We suppose your heath bed or beds will be on a lawn: in such a situation it will have a handsome appearance. It is not neces-

sary, however, to have it on grass. Heaths look well, and thrive quite as well, in a flower-garden, in the *parterre* style.

PLANTING.—Having made your bed you may plant it immediately: place the tall growers in the centre, the middle-sized ones next, and the dwarf in front; do not plant them too thick, but allow space for each variety to grow in its natural form and habit. As soon as the planting is finished, rake the bed pretty smooth, and, if you can procure some short green living moss, cover the entire surface of the bed or beds with it; the best kind of moss for this purpose is found on old stone walls, in shady situations, or on natural rocks; with a little care it may be stripped off from such places in tolerably large pieces. To keep it from blowing from off the bed, lay a few small rods across the bed upon the moss, pinning them down with hooked pegs. You will find this moss of great service, both in winter and summer; in the former season it protects the roots from severe frost, and during the summer from the heat of the sun and from drought; moss being a good non-conductor. With this article as a covering, once a week watering will do more good than watering every day without it; the moss, too, gives the bed a singular and neat appearance. More than twenty years ago, when the itch for scribbling first infected us, we, having experienced the benefit of moss as a covering for American plants, wrote an account of that success, and sent it to the late Mr. London, and he published our maiden essay in the *Gardener's Magazine*, then the only periodical devoted to the science of horticulture. We have tried moss as a protective on many occasions since that time, and have always found it beneficial. Try it, ye who have not succeeded in successfully cultivating rhododendrons, azaleas, kalmias, ledums, and other plants usually denominated "American," including those we are writing about, viz., heaths.

ORCHISES.—Amongst your heaths thus covered with moss, a number of those very interesting, and difficult to cultivate, plants, the hardy orchis tribe, may be grown very successfully. In the bed of American plants referred to above we planted several British species of orchids, and they certainly grew and flowered better than we ever saw them under any other circumstance.

CULTURE.—To return to our heaths. After they are planted, and the roots covered with moss, they will require no other attention for the first year, excepting weeding, and watering occasionally in very dry weather. In the spring following they will require pruning to bring them into a nice bushy shape. Our space will not allow us to write any more on this subject this week; we will return to it again shortly.

THE WEATHER.—On Wednesday, the 18th of April, we had a heavy shower of snow from the north-east; and the prediction we ventured to make, some time back, that frost generally succeeds hail and snow showers, was, to our regret, fulfilled in this instance, to the great injury of the early flowers that were not carefully protected. The leaves, and in many instances the shoots, of the Chinese pæonies (*Pæonia albiflora*) were completely destroyed; the shoots also of several kinds of *Clematis* were sadly nipt. Amidst all this desolation we were agreeably pleased to find the new shrubs introduced by Mr. Fortune stood the weather bravely; *Weigela rosea*, *Jasminum nud-*

* There was a heavy snow on the 17th, 18th, and 19th, at Winchester. On the night of the 19th the thermometer was down to 22°.—Ed. C. G.

florum, and *Forsythia viridissima*, are very little injured, even in a moderately exposed situation; thus proving, beyond a doubt, that these three beautiful things are hardy enough to endure the winters of this country, at least near London. We should be glad to learn from our friends in the north how this spring-winter has affected those new shrubs in their neighbourhood.

FLORISTS' FLOWERS.

We trust our amateur and cottage friends have remembered our instructions, and have protected their pets from the frosts that succeeded the snow storms we were visited with so severely. Without great care and secure covering, the auriculas, polyanthes, tulips, ranunculuses, &c., will have suffered much. Should you at any time be so unfortunate as to have allowed the frost to reach such things as scarlet geraniums, fuchsias, and other plants in your cold pit, or any other place under cover, you may recover them by sprinkling them with very cold water and thickly shading them from the sun, thus bringing on a gradual thaw in the dark; it is the too sudden change from a freezing atmosphere to warmth that does the mischief. Continue to shelter your florist's flowers. You will have had a severe lesson of the necessity of such precautions. If your favourites have suffered from this unexpected visit of such severe weather, all we can say or urge upon you is to be more careful in future. T. APPLEBY.

GREENHOUSE AND WINDOW GARDENING.

CAMELLIAS.—This family, like the tea-plant, to which it is nearly related, stands at the head of Chinese botany, and was named by Linnaeus, the great Swedish reformer of natural history, after Camellus, one of the Jesuits who explored the interior of the Chinese empire. It is, therefore, a complimentary or commemorative name, and if the old Jesuit could now be permitted to see the extraordinary extent and beauty of the progeny of his namesake, he might well be proud of it; whilst the memory of Linnaeus himself, the most eminent of modern naturalists, will be handed down to posterity by a little trailing weed, *Linnaea borealis*, called after him by one Gronovius, a botanist of Leyden; and, as it is said, in contempt for his sweeping reforms of the arrangements and naming of objects of natural history. The first camellia that was introduced to England is the *single red*, one of the hardest of the race, chiefly used now as a stock to work the double ones on. It is not a hundred years since the cultivation of camellias became general in England. Lord Peter is said to have been the first who possessed the single red camellia, about the year 1739, but it was very rare for more than twenty years afterwards. In China it is said to attain the size of an ordinary cherry-tree. In 1792, the first double camellia was introduced; a variegated one, red, with white stripes, and is the one we now call "*the old double-striped*." Some years since I bought a plant of this variety for a gentleman, which was 23 feet high, and clothed from top to bottom with leaves and flowers. The "*common double-white*" camellia was introduced about the same time; and, notwithstanding the hundreds that have since been raised from seeds in Europe and elsewhere, not one of them exceeds it in beauty and regularity of form; and the only one that comes up to it, in the

same colour, is "*the fringed white*," also of Chinese origin. Of all the camellias, this is my own favourite; the only difference between it and the old double-white is, that the petals (leaves of the flowers) are ciliated or fringed on the edge. Another of the old ones, called "*Lady Hume's Blush*," is nearly as good as the above, with a different tint, being of a buff white, blushed with pink. Then comes the "*Wavatoh*" or "*anemone-flowered*." This is a totally different flower in shape from all the rest, and is the parent of a distinct section of the family; having the centre of the flowers in the form of a double anemone, with a guard row of petals round the outside like a holly-hock flower. There are several distinct species from China, two of which are strikingly handsome; one is called the "*apple-flowered camellia*," with a rose blush flower; and the other is called "*Captain Rowe's camellia*" or "*reticulata*." This is almost the last really fine camellia that has been brought over from China, and it is also different from the others, with large half double red flowers, more like those of a poppy or tree peony than a real camellia. There are several others from China or Japan, but not to be mentioned in these days, when we have such a host of superior seedlings that it is as difficult to choose from as it is to select among the dahlias; and, like the dahlias, some new and superior ones are turning up every season. England took the lead for many years in seedling camellias; Germany followed; and, latterly, the Italians and others have been successful raisers of fine camellias; even "brother Jonathan," over the water, has been going ahead in the race, and "he guesses that ere long he shall be upsides with old John himself at a congress of national competition;" so that we are not likely to want for new camellias for some time. I have seen, at various periods, above 60 kinds of superior camellias in bloom; but there are a great number, and some first-rate ones too, that I only know from report. However, if I had the means, I could select and buy two dozen of very first-rate ones, embracing all the tints and shades of colour which the family possess. There may be a dozen more of very good ones, but that is the outside number of a good selection out of a hundred or a hundred and fifty sorts that may be had in London and from the continent. I shall give a list, with short descriptions, of those I would choose; and, as a good variety will take up no more room than an inferior one, the list may be found useful: then, to begin with the best

WHITES, there are the *old double white*, the *fringed white*, and *Candidissima*—three sorts that would puzzle any one to choose which was really the best. The old white is perhaps a shade behind in the lapping of the petals (flower-leaves). When the petals are of a thick substance, well rounded at the points, perfectly smooth, with no waviness on the edges, and lie over each other regularly, like the tiles on a roof, the whole flower is said to be perfect. The anemone-flowered ones, of course, are judged by another standard. Now, the lapping of the petals in a rose or camellia is called being imbricated, from the Latin word *imbricatus*, when they lie over each other in a perfect form, like tiles on a roof. Therefore, the meaning of the old double white being not so perfect in the lapping is, that the flowers sometimes are not so highly imbricated as in the other two. Now, place the fringed and candidissima together, and tell me which is the best of the two. Are they not both best? Well then, we must have a casting vote; your sister Mary will decide at a glance. Place them both in her hair, one on each side, and let her

look in the glass. The fringed one, decidedly! Well done, Mary; the fringed white camellia is the best after all, and ladies are the best judges of form and beauty in flowers; and we may talk and write as long as we can about our flowers, but we cannot get over that. Neither can we boast of having got these, the best whites, from seeds: they are genuine orientals, and candidissima is a kind from Japan.

WHITE AND PINK.—*Duchess of Orleans* and *Alexina* are decidedly the next best light ones: they are purely and beautifully imbricated, waxy white, with stripes and blotches of rosy pink or carmine, and are altogether the most lovely flowers one can look at. The "*Duchess*" is from the continent, and *Alexina* is an English seedling named after Alexina Low, only daughter of the celebrated nurseryman of that name at Clapton, near London, who first sold it.

RED.—*Bealii* is, perhaps, one of the very best of the reds: it is of a deep red, and shading towards the centre to a light rose or salmon colour. This is a genuine Japanese kind, introduced to China and to England by Mr. Beale, after whom it is called. During a residence of 40 years in China, Mr. Beale sent over the cream of the Chinese and Japanese plants, if we except the Japan lilies and some other fine things brought over by Dr. Siebold. This camellia is often sold under a very different name, indicating an English name: it is *Leceana superba*; but it should be cancelled in our nursery catalogues, as nothing is so provoking on either side as to ascertain that you have bought or sold a plant twice over under two distinct names; and it is an undoubted error to say that *Leceana superba* is different from *Bealii*. Another error is perpetuated by calling this "*Palmer's Bealii*," as if Mr. Palmer raised it from seed, when it is well known to any one who has any pretension to the genealogy of this tree, that Mr. Palmer only named it in compliment to Mr. Beale, in vol. ii. of *Chandler's* and *Booth's* splendid work on the camellia. *Frankfortensis* is another in the way of the last, and nearly as good; a rich rosy red, well marked with lighter spots of the same tint. The name is variously spelt in the catalogue, but the above is the way it is spelt by the person who raised it from seed in 1834—Jacob Rinz, a young friend of mine, at Frankfort-on-the-Main, that beautiful German town, which was fitted up last year as a national nursery for suckling politicians. *Henri Favre*, a French variety, and *Hendersonii*, an English seedling, are two more of the light red class of the first water; the latter, called after Mr. Henderson, with whom Mr. Appleby lives; and as they manage them there better than in most places, Mr. A. can put me right if I omit or overrate any in my list.

Eximia and *Imbricata* are two of nearly the same shade, dark red, very large flowers, and as regularly imbricated as an artist could make them in wax. *Eximia* is, I believe, the first of this class raised in England by Mr. Chandler, of Vauxhall; and there was a cry against it some years since as being a shy bloomer while in a young state, but that was owing to the treatment. It is only a dozen years since that we learned from the German gardeners that when young camellias are in a very vigorous state, they should not be potted in the spring, but not till the flower-buds are formed; and the reason is this: the pots being crammed with roots in the spring, if the plants are then fresh potted, many of the sorts run too much to wood, and forget to make flower-buds; but when such plants are allowed to make their annual growth when cramped at the roots, they cannot grow so fast, and the check throws them immediately

into bud. July is time enough to pot those camellias that are to flower from November to January; and those that bloom late in the spring may be potted in September. It is true, that when these plants are old and full grown you may pot them any time in the year with almost equal advantage; but we are now considering the best management for a young lot, many of which are fresh seedlings of comparatively a recent date, and, like seedling fruit-trees, require a judicious treatment to bring them into regular habits. On the other hand, sickly plants of camellias are often cured by being fresh potted at the time they begin to grow, or, say, about this time; then they should have one-fourth sand in the compost, with a little peat, and receive very moderate watering; but when they are not to be potted in the spring, and the pots are full of strong roots, you can hardly give them too much water for the next six weeks.

This episode will make my letter more intricate, and I often adopt the plan on purpose, in order to cause young people to read them over and over again before they can master the subject. I have little notion of dressing up these letters so as that they may be gulped over in one swallow, like bread and butter. What one learns very easily is just as easily forgotten. Now, let us see which is the next best camellia.

Imbricata alba, or *White Imbricated Camellia*.—This ought to have been classed with the *Duchess of Orleans* and *Alexina*, but, class it as we may, it is a splendid thing, white, with a rose stripe up each petal. I see, by a memorandum I sent to the *Gardener's Magazine* in 1837, that this was my favourite then; but there have been since a constant stream of new ones of the same shape, to divide one's attention, and I have since transferred my choice to the fringed white, which is not very likely to have many rivals in my day.

Landrethii is a German seedling, of which I first heard from Mr. Rinz, of Frankfort: he said, in 1842, that this was the nearest rival of his seedling *Frankfortensis*, but of a lighter hue, being a clear light rose all over, and imbricated as regularly as *Imbricata* itself.

Ochrroleuca.—This is one out of four which one of our readers bought lately at a sale, and inquired whether they were first-rate. This is the best shaped of the four, and is as regularly imbricated as the last. The colour is novel, being white, with a yellow centre, like some of the tea-scented roses: but, unfortunately, it is not always true in its colour, the yellow fading off; yet it is well worthy being ranked among the first, as, if it should not come quite true, the size and shape will still be as good as in any of the best sorts.

Queen Victoria, *Albertii*, *Mutabilis*, *Traversii*, and *Louii*, are all of the same class; of most beautiful form, the colour light red, and a white stripe in each petal. They are, therefore, beautiful "carnation-striped flowers," which are very striking, particularly *Albertii*. When the white is quite clear, and confined to the stripes, I know of no flower more beautiful for the hair.

Donkläeri and *Tricolor* are also of the same breed as the carnation ones above, but they are real picees, there being no regular stripes in them, but mottled all over, and they are neither a good shape nor a regular form, and not half double; nevertheless, I never knew any one acquainted with the subject who did not class them as first-rate. Dr. Siebold brought the first of the *Donkläeri* from Japan, along

with the beautiful lilies and many other fine things, that were lost after being landed safely at Antwerp. It so happened that Dr. Siebold's cases arrived when the French were besieging the citadel at Antwerp, I believe in 1831; and the place where the cases were put was soon filled with cavalry horses, which knocked everything about in such a way that it was a wonder that a single leaf was saved; and our original *camellia Donklieri* was in this melée. Mr. Donklier, after whom it is called, told me the story; he was then gardener at Lovain. The name is seldom spelt right in our lists, but this is the way Mr. D. always signed his name.

Palmer's Perfection.—A large deep red one, and, perhaps, the very best of our English seedlings. The form is regularly imbricated, and the shape can never be excelled. It was raised by Mr. Palmer, whose celebrity in the cultivation of these plants is well known to all who have taken an interest in the progress of improvement in this family.

Marchioness of Exeter.—This is one of very recent origin, said to be very fine; but the only two plants of it that I have yet seen in flower were very young, and the flowers were not quite first-rate; but I was assured by a good judge that it might safely be classed amongst the first light red or rose coloured ones.

Broccoli and *Succoi nova* are two beautiful Italian seedlings; the former, an imbricated light pink-coloured one, dashed with white stripes, and sometimes with blotches of white; and *Saeco nova* red, with a violet tinge, and as regularly imbricated as any on the list. I believe they were both raised by Dr. Sacco, of Milan, who is said to have been the first successful grower of them in Italy, and the first who recommended the use of the rotten wood of the Spanish chesnut to be mixed with their compost.

There is a large class of the *Waratah*, or anemone-flowered breed, many of which are beautifully mottled, like picotees, but they are going out of fashion of late years, since the imbricated class became better known. But we have more than enough of them to-day, although the list might easily be doubled.

SOIL.—Within the last few years there have been large quantities of young camellias sent over to London from the continent for public sales, and causing a wide spread of erroneous opinion as to the proper compost for them. The foreign ones being invariably potted in peat *only*; but the continental peat is as different from ours as chalk is from cheese; and our peat, if used alone, is almost poison for them in pots, although they will do in peat beds out of doors. All young camellias with us, until they are seven or eight years old, will grow better in three parts good mellow loam, and one part sand and rough peat, than in any other mixture. After that age, pure loam and sand will keep them in better health than anything else; and at that age, if the loam is rich, and of the right sort, they will not require fresh potting but every second or third year, but only to have a little fresh soil put on the top.

WATERING.—As long as they are of a manageable size no plants are better fitted for cool rooms, but dry heat is very injurious to them; I have seen a whole crop of their flower-buds drop off on being introduced into a warm dry staircase. Their leaves give no indication of want of water by drooping like many other plants, and it is always more safe to keep them rather moist at the roots than run the risk of getting too dry. In an ordinary greenhouse

their roots keep growing all winter, and, therefore, they will require to be kept regularly watered all the year round; and, as I said before, if the pots are well drained, you can hardly water them too much when growing, but no manure-water should ever be given them till after the flower-buds are formed, and none at all if they are not in good health.

PRUNING.—They will bear pruning as well as apple-trees, and just as they are beginning to grow is the proper time to prune them; but as long as they keep well clothed with leaves, and grow regular without straggling shoots, there is no occasion to prune them at all. Next week I shall give a digest of their treatment in rooms, pits, and greenhouses; also the treatment for sickly ones. D. BEATON.

THE KITCHEN-GARDEN.

THE continuance for so long a period of the late unseasonable and very cold weather will cause, we fear, great loss and disappointment in many of our late gardening operations. The quantity of snow that fell on the 17th, 18th, and 19th of April, the wind at intervals blowing almost a hurricane, and the many severe frosts since the beginning of that month, will probably not only retard and weaken vegetation, but perhaps also destroy those young seedlings which were about making, or had already made, their appearance above the surface of the earth. It will be necessary, therefore, to examine immediately our beds of *carrots*, *onions*, and *parsnips*, as well as our lately sown *cauliflowers*, *coleworts*, *borecoles*, *broccolis*, and, indeed, all the brassica family; many of which, we fear, will be found with shanked stems, and these will be easily detected after the occurrence of a few hot days. If discovered to be in a bad state, successional sowings of these crops should be made without loss of time; and it may be the means of saving many of the crops from total destruction if dry dust be scattered amongst those that are already above the ground.

Dwarf kidney beans and *scarlet runners*, having been already planted, will be found, we fear, to have suffered much, or, at all events, to be so much weakened, that a reserve should at once be sown in some sheltered corner for transplantation. It was considered safe by our ancestors to sow or plant kidney beans as soon as two swallows were seen together; but this year (in Devonshire) will prove an exception to the old adage. The swallows, in that part of England, generally make their first appearance from about the 6th to the 10th of April; and this year, notwithstanding the subsequent severity of the weather, so destructive of kidney beans, I observed, on the 7th instant, no less than three pairs of swallows skimming over the surface of the lake. On the same day the notes of several other varieties of our small birds of passage, such as the red-start, the white-throat, and the nettle-creeper or black-head, &c., were to be heard in and about the warm shrubberies. Years ago, when living in the more eastern counties of Kent, Surrey, Middlesex, and Essex, the 17th of April was there about the usual time of these welcome visitors making their first appearance; so that it seems that they visit this locality, on an average, ten days earlier. The nightingale, I am sorry to say, does not visit us here.

The soil is now so saturated and cold, that it will take some days of sunshine to warm it; consequently,

as has often been observed in former years, notwithstanding all the open mildness of the winter, it will be a late spring for most kinds of vegetation. From the 12th to the 21st of April we have had, in this locality, the severest nights that have occurred since the 21st of December, and more snow than has fallen during the whole of the last winter; consequently all kinds of fruit and vegetables are very seriously injured, and present the most miserable appearance that we have ever seen in the last week of April. The hurricane of wind prevented the proper covering and protection being afforded to the growing crops that the severity of the weather required.

FRAMES.—Sow, in succession, the best varieties of *cucumbers* and *melons*; keep well thinned the vine where the fruit is swelling; and should the canker make its appearance, which is not unlikely after the late unfavourable weather, stin over the parts affected a little fresh slaked lime, taking care, when applying water, not to wet either the foliage or the vine of the melon. Our standing rule, indeed, has been for years, as we have frequently observed, never to water over the heads of either cucumber or melon, but to apply it amongst them from the spout of the watering-pot without the rose, and by watering around the inside of the pits or frames at shutting-up time, which causes a kindly vapour to arise during the night.

JAMES BARNES.

TO CORRESPONDENTS.

N.B.—Want of space obliges us to postpone many answers until next week.

DANDELIONS (*J. S. L.*).—A tedious but only effectual mode of destroying the dandelion on your lawn, is to cut each one with a knife or spud in dry weather, and to put a spoonful of salt into the hole upon the stump of the roots. A woman will go over a large lawn in a day. The grass will soon stool out and cover the blank patches.

LAMA ARREY PEARMAN (*Ibid.*).—This has no other name either in Lindley's "Guide to the Orchard," nor in the Horticultural Society's "Catalogue of Fruits." You could obtain it of any respectable nurseryman. It is a middle-sized apple, of the usual pearmain shape; eye small and deeply sunk; stalk short and deeply inserted; yellowish green on the north side, and red, spotted with black, on the sunny side; flesh green next the core, but yellowish near the skin; crisp, juicy, rich, and aromatic. Lasts from January to April. Raised in 1865, by Mrs. Malcolm, of Lamb Abbey, in Kent, from a kernel of the Newtown pippin.

NAME OF GRUB (*Dr. Sylvester*).—The dirty-looking grubs which you have sent, and which you say are destroying your peas by eating their roots, and which are similarly destructive to strawberries in your friend's garden, "where he has found thousands of them," are the larvae of one of the crane flies, so familiarly known as daddy long-legs (*Tipula*). Your grubs are probably those of *Tipula pratensis* or *T. quadrifaria*. These grubs are called, by gardeners, "surface grubs" and "leather jackets," are dirty white, stained with earth colour, with wavy lines of the same down the back, and heads almost black. They are found not far from the surface in our gardens during April and May, especially where the soil is wet; and feed on the roots not only of those vegetables you mention, but upon those of kidney beans, potatoes, lettuces, &c. Indeed, scarcely any root is rejected by them. They change to the pupa state in August, and in a few weeks after from thence come forth the crane flies. Lime-water has no effect upon them, but quicklime and gas lime dug where they are, is said to be fatal to them. We should pare off two or three inches of the surface, wherever practicable, mix it thoroughly with one bushel of gas lime to two bushels of the earth, and after turning it over at the end of two days, spread it as a manure wherever required.

ERRATA.—At p. 11, line 24 from bottom, for "*Runcia*" read "*Rumex*." At p. 16, line 24 from bottom, for "*fasciculatus*" read "*fasciculatus*." At p. 17, line 36 from top, for "*grandifloru*" read "*grandiflorum*."

WINDOW DUTY (*Rev. Mr. Baker*).—A greenhouse connected with the parlour, as mentioned at p. 19, we think would be within the act 57 George III., c. 55, s. 1, exempting from duty windows in buildings not used for the purposes of habitation. We know of no decision upon the point. Thanks for the two corrections.

EXPOSED SITUATION (*R. P. Burton*).—We can suggest no better mode of procedure than that you should plant a belt of quickly growing trees, such as the black poplar, or whatever tree may be

better suited to your soil. Plant on the S.W. and other sides whence the offending winds come.

ALTHEA FRUTEX (*F. J. Williams*).—This is the common name for the Syrian hibiscus (*Hibiscus syriacus*). The flowers are shaped like those of the mallard; but they are of various colours, those of some varieties being white, but they are chiefly of various shades of purple. Plant your cuttings in a pot of light earth, cover it with a bell-glass, plunge it in a gentle hot-bed, and keep the earth gently moist. It is a very common and very showy plant. It has been cultivated here for more than two centuries.

BULBS (*Ibid.*).—All choice bulbs should be taken up and dried, but they must on no account be moved until the leaves are quite dead. If you cut off the leaves, or move the bulbs before the leaves are dead, it will injure or prevent the production of flowers next year.

ADAGE (*Rev. J. S. L.*).—We are quite sure you are right in stating that our adage, at p. 21, refers to the river Dove in Derbyshire; yet it may well bear an interpretation that a gentle increase of our rivers' waters in April is universally favourable to vegetation.

BURNING THE MOVING MACHINE (*Ibid.*).—We fear that this will not answer your purpose, unless you have some one you can depend upon for keeping the blades of the machine sharp and in constant good order. It certainly will not roll a lawn sufficiently to render a roller needless.

VINEGAR PLANT (*John Horsley and E. Murrill*).—This, we believe, is an aquatic plant introduced from Italy, which, when put into a mixture of sugar and water, grows and rapidly converts the mixture to vinegar. We hope to give further information shortly.

PAINTED BOX HIVES (*Musaicæ*).—These are not injurious to bees, if they are not painted on the inside; neither are dahlias injurious to them.

CAULIFLOWER (*Ibid.*).—Your seedsman is pretty correct: there is but one kind of cauliflower, and early or late crops of it are usually dependent upon the times of sowing. At the same time there are three varieties recognized—the early, the large late, and the garden stalked. Our conditor, Mr. Barnes, has also stated in some of his published writings, that there is a large late variety, quite distinct from the common. We can only say, that all the varieties we have met with, pass into each other according to the time of sowing and the richness of the soil. It is on record, that a poor gardener was sued in Westminster Hall for selling, as cauliflower-seed, seed which only produced long-leaved cabbages! Little was known in those days about the liability of the tribe to be cross impregnated and to sport into varieties.

BONE DUST USED FOR HARDENING IRON (*J. W., Birmingham*).—The bone-dust so employed, if we understand the process, is carbonized by coming in contact with the red hot metal. If this be so, the bone-dust will be improved rather than reduced in value by the process. Animal charcoal is a very excellent manure.

FUCHSIAS IN A HOT-BED (*S. Anderson*).—The heat arising from stable dung is not injurious to fuchsias, but you must keep it very moderate; never higher than 70°. You need not shade them, but you must keep them well supplied with air, and that very moist. To great dryness has occasioned the red spider, of which you complain. To fumigate with sulphur, use the mixture specified at p. 271 of Vol. 1. Apply it round the sides of your frame at the time there mentioned. You must apply it until you find the vermin are all gone.

CONSERVATORY BORDER (*Leer, Jun.*).—The climber appears from the phonetic spelling to be *Stephanotis floribunda*. We are never at a loss to know what plant any reader means if he only spells it accordingly as it sounds. Your proposed plan of making a border for climbers over the flue across the east end of your hothouse will not do at all, although that is the coolest part of the flue; it would in one week render the soil so dry that nothing could grow in it. Constant watering to counteract this would only hasten the rain. A strong wooden box of the same dimensions as your proposed pit, and placed a few inches above the flue, might answer. The *Stephanotis*, *Hydra Carnosa*, and new passion-flower, will require 40° of heat in winter to do any good, and to be kept very dry. Why not make a raised border for them above the flue and pipes carrying air, and having the warm end? This border might stand a yard from the pipes and flue, the climbers to be trained to upright rods to the height of seven feet, and then arched over to the back wall, leaving a passage along the side of the pipes.

PIT FOR GROWING CUCUMBERS (*J. W. Steel*).—You propose to have a small brick pit, three feet deep, 7 feet long, and 3 feet wide, to be heated by hot-water pipes, supported on pillars within a few inches of the slates supporting the soil. This plan, for growing winter cucumbers in, is very good and will answer perfectly. See what is said about bottom heat, from pipes under a slate covering, at page 265 of Vol. 1. The three feet will be the outside of the depth you want; if the pipes under one brick clear from the bottom and three inches below the slate it will be enough, because the smaller the cavity the better. Do not make the slate covering quite close, leave a small space between the edges to drain; place a thin layer of rough cinder ashes over the slate, then a thin turf.

WINTER SHELTER FOR PLANTS (*Ibid.*).—With a wooden shelter over the glass, and abundance of straw stable or fern to put on all round during severe frost, you may keep your geraniums, fuchsias, &c. safe enough in a cold frame. If you were to plant them into the pit in September, using light soil, they would keep much better than in pots, and would not require any water from October to March. During the winter, to prevent enemy to plants from the frost, you must plant bushy, nip off their tops occasionally, and allow them plenty of air.

BORDER PLANTS IN POTS (*John Wilson Blackett*).—To let well alone, is a good maxim; and you have done quite right to keep your border plants in their winter pots. Leave them just as they are till

the frosts are over in May; and when you plant them out, squeeze the hauls a little, so as to loosen the roots, which will enable them to run into the bed with more freedom.

ARISTOLOCHIA SIPHO (*Ibid.*).—This grows perfectly easy by layers or cuttings. You must try again, but if you find any difficulty, you might lay out for ninepence from any nurseryman.

HOYA CARINOSA (*J. Styan*).—This is anything but a greenhouse plant, though it will live well enough in a common window in winter if kept dry like a cactus. To flower it well it requires forcing like a vine from the end of March to July, and even a pine-trove would suit it better than a viney window growing; therefore, though it may live and look green, as you say, and even produce a few flowers in a low temperature, yet it is only throwing time and space away to keep it otherwise than as a stove plant.

CINERARIAS NEARLY DONE BLOOMING (*C. R.*).—You are right; answers to one correspondent may be useful to hundreds, and we shape them, as much as the nature of the subjects permit, to render them generally beneficial. Cut off the flowers of the cinerarias as soon as they begin to fade. Keep them going as they are till the May frosts are over, when they are to be turned out of doors into a shady place; then cut them down to the surface of the pot, and plant in a rich light border, and regularly water through the summer. In August take them up, divide them, and pot the best pieces for flowering next spring, or perhaps earlier. Leaving them in the ground later than August is the cause of your losing them in winter, as they have not time to get well established when left later in the open air.

CAMELLIA SOIL (*Ibid.*).—The Birmingham nurseryman ought to know better than to tell you that peat would answer for your beautiful white camellias; in fact, it would do them more harm than good. See what Mr. Beaton says of them to-day in another column.

BEGONIA FICOIDES (*Ibid.*).—This is, indeed, one of the finest new plants we have, but will not do well for a greenhouse. It requires more heat while growing, say from March to July; it will then flower most splendidly all the autumn, and may be kept rather dry in a good greenhouse. Cutting it struck root, you will have a flower next autumn twelvemonths. Every one who can command a little extra heat in spring ought to grow it.

SCARLET GERANIUM BED (*A Subscriber, Putney*).—An oval or circular shape would be the best form. The size is a matter of taste and convenience. If your garden is small, a large bed would be in bad taste; if you have better have two or three small ones. Should your lawn be large, your bed may be large also. If you choose the oval shape, eight or ten feet long by five or seven feet wide, are good proportions. Let the centre be raised considerably; the soil should be of a rather poor nature, but not strong loam or clay. This poor soil will cause your geraniums to grow as they should. See Mr. Mitchell's *Ton Thamb's Master* is the finest scarlet for a bed we know; but it is, as yet, rather dear (*2s. 6d.* each). There is a sort called *Proserpine* or *Pro-eminent*, that is excellent for bedding; being dwarf, free blooming, of bright colour, and having large trusses.

FATHERHOOD HYACINTH (*A constant Reader*).—You do not say what kind of soil your garden consists of, neither do you state the aspect, both of which will affect this plant. Make a compost of leaf-mould, peat, and light loam, in equal parts, and as soon as your feathered hyacinths have lost their leaves by a natural decay, take up the bulbs and put them in pots; three bulbs in a pot five inches wide, using the above compost in a rough state. Place the pots during the summer behind a wall or low hedge having a north aspect; and in autumn, plunge them in coal ashes in a sheltered part of the garden on a south aspect. They will gain strength to flower, treated in this manner, for a year or two; after which, they may be planted in patches, or in a bed made of the above compost. The patches should have some of the compost put in them to grow the plants in; it should be at least eight inches deep.

CARNATIONS (*Frederick Giles*).—You have hitherto managed quite rightly in keeping them sheltered from rain, but you may now allow them to have gentle showers; protecting them, however, from heavy rain, or hail any more.

CACTUS TRUNCATA (*Ibid.*).—This is now called *Epiphyllum* (*epi* upon, *phylum* leaves—bearing its flowers upon leaves) *truncatum*. You may treat your grafted plants exactly the same as you did those on their own roots.

WEEB-WORMS (*Herbert*).—These are the toughest of all the gardener's enemies. Neither salt nor lime, in such quantities as can be applied to a soil, has any effect upon them. Spirit of tar and gas-lime have both been recommended, but we do not see how you could apply these to your soil in which tender annuals are growing. It is said that they leave the soil where white mustard is grown, and this is worth a trial. It is also said, by excellent authorities, that if you grow daisies they will leave all other roots for these.

FRAME FOR GERANIUMS (*G. Langtry*).—A three-light frame, heated by a flue, and covered for wintering your plants in, without having any bottom-heat from dung or tan. You only require to exclude frost from them in winter, and the flue will give enough heat for bringing your plants on in succession. Do not put any sand or other plunging material over the flue; it would soon become quite dry, and would be too hot to permit being watered. The frame would do for camellias, when out of bloom, if a little heightened.

SULPHATE OF AMMONIA (*A. S. W.*).—A quarter of an ounce of this salt to a gallon of water is quite strong enough, and should not be used more than once a week. Do not put it to any seed beds, but only to good-sized, growing, healthy plants. It will benefit your crops generally, including roots, artichokes, peas, and beans, as soon as the flower buds are visible. Thanks for the correction.

COTTAGE GARDENER ADVERTISEMENTS (*C. J.*).—Your binder will find no difficulty in omitting these from the weekly numbers, if so directed. He will cut close to the inner marginal line, so as to leave a lap over for sticking through.

URATE OF LONDON MANURE COMPANY (*Arantensis*).—Of this, applied to the soil, two pounds to every thirty square yards are sufficient. We think it is more easily taken up than guano, and its use extends beyond the first crop. We have never tried it as a liquid manure; and if you do, we advise you not to use more than half an ounce to the gallon of water. We hope to have more Himalayan pumpkin-seeds this autumn; at present we cannot supply your loss.

REMOVING BULBS (*W. T.*).—This must not be done in any case until their leaves are dead. If you move your arifolius, Jossius, and crocuses now, they will bloom more or not at all, next year. The leaves and roots are now employed in preparing materials for next year's flowers. You may rub off the shoots of your plums, apples, and gooseberries, if those shoots are coming where you do not require them.

HARD WATER (*Ibid.*).—For making tea, &c., the best addition, we believe, is a very minute quantity of sulphate of ammonia.

HAND-BOOK OF FIELD BOTANY (*A Dissenting Minister*).—This is out of print.

BROWN BEURRE PEAR (*E. Mugridge*).—This is against a wall, healthy, not over luxuriant, blossoms at the ends of the branches only, and bears no fruit. The brown Beurre Pear, although an excellent old kind, is one which, we fear, may be termed "worn out," at least in many districts. A good tree of pears of this kind is now seldom seen; and yet the name is not much better among the newer kinds. Do not root-pear wearing-out kinds. Tie down a considerable amount of nice short-jointed spray this summer, and try that. We suspect you prune on the old destructive "spur system."

PEAR-TREE SHOTS (*S. T. Ipswich*).—You ask, whether tying down the young shoots in the spring will produce blossom-buds. We fear not; but it will strengthen those already formed; therefore, tie down some of the moderate of last year's shoots, if not pruned away, by all means. Tie down, also, a few of the shoots of the current year, in the course of July or beginning of August. In all cases select close-jointed knotty wood in preference to that which is green. In the case of young shoots of this year, choose those which bid fair to cease growing first, and look brownish.

HOLLOW POLLARDS ON A LAWN (*Rev. C. W. L.*).—For these, which you have arranged as rustic vases in your flower beds, we should select flowers of peculiar expression for the centre; for, as your climmers will be festooning around somewhat radeley, prim forms would be out of the wall. The following, though not particularly novel, would perhaps answer—1, *Hume's Begonia*, surrounded by the pollard by *Love's bleeding*. 2, *Panckia lanceolata*, a large bush; this would want nothing round. 3, Group of tall *Scarlet Lobelias*, at least five, surrounded by the larger *Chrysopsis californica*. 4, *Helianthus*, in the old bush of the *Old Geranium*, a brassy scape-pendulous kind; nothing around this. 5, *Persea*, a large tree, surrounded by *Love's bleeding*. 6, *Rose bush*, the *Phoenix* (Bourbon). In addition to your climmers, pray add the following:—*Maurandia*, *Barclagana*, *Rhododendron colabie*, *Lophospermum erubescens*, *Campylocheilum*, *Andropogon*, and *Tropaeolum pentaphyllum*. The *Asperifera* *fida* *femina*, or lady fern, would look well in a pollard; so would *Umsunda regalis*, or royal fern. Such pollards would be well adapted, as vases, to receive well grown specimens in pots through the summer. Do not fill up too much with mere drainage. Bore an auger hole to let waters escape. Cover or surround the things inside with moss; and top-dress with six inches of half-rotten manure. Use a strong loamy soil also.

BOUNDARY ROW OF STANDARD ROSES (*Ibid.*).—Hollyhocks would look well between the roses in your back row. If any thing low is required, dwarf dahlias, or well-grown groups of China aster.

THINNING PEAR BLOSSOMS (*Ibid.*).—The only danger in your case is, that you will reduce your chances of a "good set." We have little faith in thinning out blossoms; why not wait till they are "set," and then thin out? If they set well, leave a pretty full crop; in that event, you can apply liquid manure if necessary.

CLIMBERS IN BALCONY (*W. H. Islington*).—The canary bird plant, blue convolvulus, sweet peas, and lophospermum, will succeed with you in an easterly aspect; use a rich light loam for them, and double up them. See pp. 30 and 38. Do not now put out the agapanthus. See p. 311, vol. 1. Antirrhinums will grow with you.

SHELTERED PEACHES (*An Amateur Gardener*).—Your peach-trees, sheltered with canvas, have failed to set their fruit, whilst your neighbour, who did not shelter his, has a good crop. Be assured that your failure did not arise from your sheltering, if properly managed. There must be a difference in the aspect, in the time of blooming, or in the soil; or you left your trees uncovered at some time when severe cold or keen easterly winds were prevailing.

MUSKROON SPAWN (*An Admiring Subscriber*).—One bushel of loose spawn is required for a bed 10 feet long and five broad. If you sow spawn bricks break them up and mix them with the soil, and plant, in rows, a portion six inches apart each way. You will find directions given by degrees for cultivating all the flowers you name; much has been given already relative to the pansy and carnation.

LILIUM LANCEIFOLIUM ALBUM (*G. Kendal*).—Your treatment has been quite right. This is generally the best of the kind, and the red variety. You should give it moderate waterings, so as just to keep the soil moist, and treat it exactly as directed for *L. L. rubrum* at p. 248 of vol. 1.

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WEEKLY CALENDAR.

M	D	W	D	MAY 10—16, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
10	Th			Daddy Long-legs appears.	Fine-leaved Paeony.	18 a. 4	35 a. 7	10 29	18	3 50	130
11	F			Reed Bunting lays.	Yellow Asphodel.	16	36	11 17	19	3 52	131
12	S			Lily of Valley flowers.	German Iris.	15	38	11 59	20	3 54	132
13	Sun			ROGATION SUNDAY. Swift appears.	Common Comfrey.	13	39	morn.	21	3 55	133
14	M			Dot Moth appears.	Common Paeony.	11	41	0 35	22	3 55	134
15	Tu			Hawthorn flowers.	Eastern Poppy.	10	42	1 7	23	3 55	135
16	W			Spotted Fly-catcher appears.	Large Star of Bethlehem.	8	44	1 37	24	3 54	136

ROGATION SUNDAY.—Among the Romans it was customary to celebrate annually a festival called *Terminalia*, in honour of their idol *Terminus*, who they considered as presiding over the bounds of their estates. During that festival, the owners prayed for a blessing upon their farms; but there is little room for doubting that one intention of the ruler who instituted this annual festival was thereby to perpetuate the memory of the boundaries, for the avoidance of litigation. Even at a still earlier period, we know that the Levitical law not only forbade the removal of land-marks, but invoked a curse upon him so tending to a confusion of property (Deut. xix. 14, xxvii. 17). The benefits arising from "walking the boundaries," and the facilities afforded to the introduction of Christianity by grafting religions exercises upon the old idolatrous customs, induced its early teachers to make a religious ceremony of these perambulations; and, until a very recent period, these perambulations have been kept up, accompanied by a particular form of "rogations," or prayers (from *rogare*, to ask) and sermons under "gospel trees," in which God's blessing upon the neighbourhood was besought, and his providence enforced. The religious exercises have now almost or entirely ceased throughout England, yet many remnants of the festival and its attendant customs remain; all showing that the particular production of the place was especially the subject of the people's supplication on the occasion. For example, in the salt districts of Cheshire and Worcestershire, the brine springs are decked with flowers; at Newcastle, "cheerful libations" are still poured out in honour of the "coaly Tyne;" and about Keston, in Kent, the land of fruit, they run into the orchards, and, encircling each tree, sing—

"Stand fast root; bear well top;
God send us a yielding sop!
Every twig an apple gay,
Every bough apples enow."

PHENOMENA OF THE SEASON.—We will conclude our observations upon the leaves of trees, for their blossoms are rising around us and becoming prominent phenomena. The following is from "The Elements of Gardening."—"The duration of a leaf is in general but for a year, though in some plants they survive for a longer period. It is generally of a green colour. Light seems to have a powerful influence in causing this; since, if kept in the dark, leaves become pale yellow or even white, unless uncombined hydrogen is present, in which case they retain their verdure though light be absent. Hence their blanching seems to arise from their being unable to obtain this gas under ordinary circumstances, except when light is present. Now the only source from which they can obtain hydrogen, is by decomposing water; and how light assists in the decomposition, may perhaps be explained by the disorganizing power with which it is gifted. The violet rays of the spectrum have this power in the greatest degree; and Schuebler has ascertained by experiment, that those rays have the greatest influence in producing the green colour of plants. When leaves are of any other hue than green, they are said to be *coloured*. This variegation is often considered to be a symptom either of tenderness or debility; but Mr. Knight has demonstrated that variegation is not a certain indication of a deficiency of hardihood. The function of the leaves is a combination of those of the

lungs and stomach of animals; they not only modify the food brought to them from the roots, so as to fit it for increasing the size of the parent plant, but they also absorb nourishment from the atmosphere. The sap, after elaboration in the leaves, differs in every plant, though it appears to be nearly the same in all vegetables when it first arrives to them. The power of a leaf to generate sap is in proportion to its area of surface, exposure to the light, and congenial situation. Evergreens transpire less moisture than deciduous plants, which would lead to the expectation that they are more capable of living in dry situations, which, in general, they are not. The transpiration of plants decreases with that of the temperature to which they are exposed, as well as with the period of their growth. This explains why the gardener finds that his plants do not require so much water in cold weather, nor during the time that claspas between the fall of their blossoms and the ripening of their seed. During this period they do not transpire more than one-half so much as during the period preceding and attending upon their blooming. The transpiration takes place from the upper surface of the leaves; and if these gradually decay and fall, the growth of the plant ceases until fresh leaves are produced. Hence arises the benefit which plants derive in rooms, greenhouses, and other confined inclosures, from keeping those surfaces cleansed with the sponge and syringe. Some plants are particularly sensitive to injury from any check to their transpiration, among which are the tea-scented roses; and it thence arises that they cannot now be cultivated in nursery-gardens near London, where they once flourished when that metropolis was less extensive. The drier the air the greater is the amount of moisture transpired; and this becomes so excessive, if it be also promoted by a high temperature, that plants in hothouses, where it has occurred, often dry up as if hurried. The lady has mentioned Mr. Daniell has well illustrated this, by showing that if the temperature of a hothouse be raised only five degrees, viz. from 75° to 80°, whilst the air within it retains the same degree of moisture, a plant that in the lower temperature exhaled 57 grains of moisture, would in the higher temperature exhale 120 grains in the same space of time. Leaves have the power of absorbing moisture as well as of emitting it, which power of absorption they principally enjoy during the night. During the day leaves also absorb carbonic acid gas, which they decompose, retaining its carbon and emitting the greatest part of the oxygen that enters into its composition. In the night this operation is in a certain measure reversed, a small quantity of oxygen being absorbed from the atmosphere, and a smaller proportion of carbonic acid emitted. Carbonic acid gas in small proportions is essential to the existence of leaves, yet it only benefits them when present in quantities not exceeding one-twelfth of the bulk of the atmosphere in which they are vegetating, though one twenty-fifth is a still more favourable proportion; and as herbs, destined by fermenting matters, rapidly have the air within their frames contaminated to a much greater extent than the proportions above-named, thence arises the injury to the plants they contain from a too long neglected ventilation. The leaves turn yellow from the excess of acid, which they are unable to digest, and which consequently effects that change of colour which also occurs in autumn, and which will be more fully considered when the decay of plants is detailed.

INSECTS.—Every grower of the apple knows how liable his fruit is to be worm-eaten." He finds baskets of "windfalls" even in the calmest weather, and that the cause of the loss is a small grub, which has fed upon



the pulp of the fruit; but how, when, or where those grubs got there he has not the slightest notion. As it is one of the most injurious of insects to our most useful of fruits, we shall give more full particulars than usual, borrowing them chiefly from Mr. Westwood's essay in the *Gardener's Magazine*, iv. 335, N. E. The grub in question is the larva of the Codling Moth, *Carpocapsa pomonella* or *codonella*

entomologists, but *Tinea pomonella*, *Pyrallia pomona*, and *Tortrix pomonana* of others. It is upon the pulpy parts of the apple that the grub chiefly feeds; when, however, it has nearly attained its full size, it feeds on the pips of the apple, which, thus attacked, it is its most vital part, soon falls to the ground. No sooner is the apple fallen, than the grub quits the fruit by the passage which it had pre-

viciously gnawed. A hundred apples may be specked, and not more than two or three larvae observed within them; the orifice by which they have escaped being open, and not concealed by a little mass of brown grains, which is the case with those apples from which the larva has not made its escape. These little grains are the excrement of the larvæ, which are also to be seen in the burrows formed by them within the apple. The grub is of a dirty white colour, with a brown head, varied with darkish brown marks. The body is slightly hairy; the first segment after the head is whitish, with minute brown spots; the other segments are of a pale colour, with about eight small tubercles on each; each of the three anterior segments is furnished with a pair of legs, and there are a pair of feet at the extremity of the body. In its early state it is of a dirty reddish or flesh colour. The caterpillar wanders about on the ground till it finds the stem of a tree, up which it climbs, and hides itself in some little crack of the bark. The fall of the apple, the exit of the grub, and its wandering to this place of safety, usually take place in the night-time. It gnaws away the bark a little, and having made a smooth chamber, spins a little milk-white silken case, in which, after a few weeks, it becomes a chrysalis; and in this state it remains through the winter, and until the following June, when the moth comes forth, and is to be seen hovering round the young apples on a midsummer evening. The moth itself, of which we give a cut, of the natural size and magnified, is a very beautiful insect, about three-quarters of an inch in expanse: fore wings

ashy-brown, with very numerous, rather obscure, darker, transverse streaks, united into a broadish band towards the base, giving them a dappled appearance. On the hind border of the fore wings is a large reddish-brown patch, spotted and surrounded with a golden mark. The hind wings reddish-brown, tinged with yellow. The moth lays its eggs in the eyes of the young apples, one only in each, by introducing its long ovipositor (egg-tube) between the leaves of the calyx. As soon as the egg is hatched, the little grub gnaws a hole in the crown of the apple, and soon buries itself in its substance; and it is worthy of remark, that the rim of the apple, as if selected for the purpose, is thinner here than in any other part, and consequently more easily pierced. The apple most commonly attacked is the Codling. It will be evident, from the preceding details of the habits of this moth, that there are considerable difficulties in the way of its extirpation. It is impossible, for instance, to be aware of the presence of the enemy within the fruit, until the mischief is actually completed; and, in like manner, the destruction of the moth, from its small size, and its habit of secreting itself in crevices of the bark, &c., is equally impracticable. The gathering up of the worm-eaten apples immediately after their fall, and before the enclosed caterpillar has had time to make its escape, cannot but be attended with good effect; cure, however, must be taken to destroy the larvæ, which would otherwise very speedily make their escape. The cocoons also may be destroyed in the clefts of the bark during the autumn and winter.

On every available occasion we enforce upon our readers' attention the two great operations of plant culture—stirring the soil and manuring. Two thousand years ago Cato urged the same topics upon his countrymen. "The first thing in cultivating the soil," says this wise Roman, "is to plough; the second is to plough; and the third is to manure." (*De Re Rustica*.) It is upon this "third" fundamental operation of good cultivation that, again, we have a few words to offer.

More than once we have given information which we thought would assist the cottager and the amateur in making a tank for holding the manure for his garden, and we have now to describe one which we have just completed, two feet deep in front, two feet six inches deep at the back, six feet long, and three feet wide. We had a hole dug out by the side of the pig-stye six inches deeper, and one foot wider and longer than the above size. Into this hole we poured six inches depth of asphalt over the entire bottom; we then put in a wooden box, previously made of rough slabs, of the size above mentioned; then put in some broken bricksruts round the box, pouring in asphalt to fill up the interstices between the bricksruts, as these were put in a few at a time. A lid with staple hinges, so as to be removeable at pleasure, covers the whole; and a gutter communicates from the stye into this watertight tank through a hole near its top. The whole cost less than thirty shillings. The asphalt is made according to the recipe given at p. 258 of our first volume. If the cottager puts together the wood-work of the tank himself, forming it of old cask staves, or other rough material, and without a lid, he may make it for ten shillings. The wood-work is only required to keep the fork and the shovel from injuring the asphalt. In a tank like this all the house sewage and refuse of the garden can be preserved and mixed, and not a drop of the liquid drainage (the most valuable portion of the fermenting manure) is lost.

We have just had our attention more particularly

recalled to the subject of manures, whilst perusing the recently published work entitled "*China and the Chinese*."* The devotion of these people to the cultivation of the soil, the ceremony of their Emperor annually ploughing the soil, their successful culture of the chrysanthemum and the dahlia, and their extreme care in accumulating manures, are facts long since known, but until we read these pages we had no idea that their care to store up fertilizers descended to such minute particulars. The statement we made (Vol. I., p. 144.) about the jars for the preservation of the house sewage is fully confirmed by Mr. Sirr. He says that when walking through the gardens of Cowloon on the mainland, from whence Hong Kong is supplied with fruit and vegetables, "in each garden is to be seen a large earthen vessel, uncovered and exposed to view, in which is accumulated all descriptions of filth, which, although very requisite and proper when used for manure, sends forth anything save an agreeable odour, and is not peculiarly pleasing to the visual organs." But the salvage of fertilizing matters seems to be viewed as a duty by all classes, and descends even to such minute particulars as saving the refuse of the barber's trade. When the operation of shaving and hair-dressing is terminated, the barber receives about five cash (less than three farthings), carefully collects the hair in a small tub (which he afterwards sells to the manure gatherers), and walks off to another part of the town in search of further employment. Manure gathering in China is a regular trade. "Manure is usually applied in a liquid state, night soil being preferred; and there are coolies (porters), says Mr. Sirr, who make it their business to go from house to house, purchasing this and other refuse animal and vegetable matter, which they sell to the farmers. It would be impossible to enumerate the substances which are used for manure: the parings of nails, cuttings of

* *China and the Chinese, their religion, character, customs, and manufactures.* By H. C. Sirr, M.A., Barrister at Law, and Co., London. This is a highly interesting and faithful portrayal of the Chinese, and is the result of observations made during Mr. and Mrs. Sirr's residence of several years in China.

hair, the scrapings from the beard, bones, ordure of animals and birds, are all applied to the same purpose."

We quote these facts because they shew a whole nation alive to the importance of preserving everything that aids in the production of food; and if they were not thus careful, the soil would not be enabled to yield sufficient for the nourishment of the people—for China is the most populous empire in the world. Our countrymen will do well to take a lesson from them; and if the household of any cottage would be as minutely particular in saving every particle of refuse for one year, they would do so ever after, for they would be convinced of its importance by the increased fertility of their garden.

THE FRUIT-GARDEN.

ROOT PRUNING.—It may seem strange to many of our readers that we reintroduce this subject at this period; nevertheless, we deem it our duty so to do. The spring has been so very ungenial, that in all probability the general cry will be that the blossom of the earlier fruits has set badly. We have passed one of the most severe Aprils on record; and, from what we can learn, the severe frosts and snow which occurred extended over the entire surface of the kingdom. London papers reported cases of extreme severity—as much as 7° or 8° of frost. Newcastle-on-Tyne reports were similar; and we can bear ample testimony as to the condition of Chester and the neighbourhood, for we ourselves registered 6° of frost, and it was doubtless, on more than one occasion, greater. Now, as these three stations constitute nearly a triangle including a great portion of England, the universality of this terrible weather is a tolerably fair inference. Much havoc must have been committed amongst our more tender fruits, especially apricots, peaches, plums, pears, and cherries. The consequence of all this is not merely the loss of fruit, total or partial; such trees will have little or no labour to perform, for such we term a cessation from bearing for one season. What, then, is the consequence in a future season? Why, that all gross-growing trees will produce more breast wood than ever; and then comes a host of queries, of course, to THE COTTAGE GARDENER, as to what is to be done with these unruly subjects? With regard to old trees, or those which have borne heavy crops for years, the case is very different—it is a kind of vegetable jubilee to them. Indeed, if our gracious Creator had not, in his infinite wisdom, laid the foundation for the occasional occurrence of what the world call "blights," there can be little doubt that the longevity of most of our fruit-trees would be much abridged; and not only this, but very much of their produce would be of an inferior caste, both in size and flavour; therefore, with Pope, let us admit that "partial evil becomes universal good."

The reasons, then, for introducing the subject now, is to show that something may be done, by anticipation, towards the productions of another year. We have several times root-pruned fruit-trees, under similar circumstances, during the last twenty years; and, when judiciously performed, it has

always answered the point we intended. Indeed, we may boldly appeal to many of our readers whether they have not, before now, removed a pear-tree out of season, as it is the usage to say, perhaps at the end of April; and whether they have not, occasionally, been surprised to find blossom-buds on such a subject in the ensuing autumn, when, perhaps, it never produced one before? and all this in consequence of what we must, in an off-hand way, term abuse.

Those who have gross and barren trees, therefore, may fearlessly apply the horticultural lancet, even at this period. We would not prune back so severely as we would in the end of October. It is better, at this period, to be rather more moderate; and, instead of pruning so much of the extremities of the roots away, to leave the trench open for a few weeks, in order to check them by drought. This is by far a more legitimate course than root-pruning. Indeed, the forming a deep trench round a gross tree, and suffering it to remain open most of the summer, would generally go far towards taming the most robust of our fruit-trees, and would not unfrequently supersede the necessity of more severe operations, especially if a hot and dry summer occurred. It would be tantamount to planting the tree on a hillock, totally elevated above the ground level, the effects of which are well known, and not yet sufficiently appreciated in our northern counties, or in the moist climate of Ireland, and the chilly one of some parts of Scotland. The only thing that tells against this course is the untidy appearance of such excavations; we, therefore, dare only recommend this course in the ordinary orchard.

We have before treated of the *general* maxims or principles of disbudding, as applicable, in the main features, to most of our trained fruit-trees in common; we now deem it necessary to handle each family of fruits in detail, as every one possesses some slight peculiarity. We thus hope to bring good fruit culture home to every man's door in due time, and make every point as familiar as household stuff; and if we should live half-a-score years longer, it is not improbable that what appears at present erudite or obscure, will be familiar to the cottage wreath of those days.

DISBUDDING THE PLUM.—We commence our details with this fruit on account of several queries recently addressed to us, and which we hope to answer in the course of our remarks. On referring to page 156 (No. 15), it will be found that we alluded to the vast difference in habit of growth between different sorts of plums. Thus—the Washington, the Magnum-bonum, the Jefferson, and suchlike, are managed with much difficulty in a trained state, unless some special means are taken to dwarf them. Our platform will assuredly accomplish all this in the most faithful way, provided the points be duly carried out. We have, however, another duty to perform, and which must by no means be lost sight of. The great majority of the readers of THE COTTAGE GARDENER have to deal with *established* trees; established, in the main, on principles averse to the objects here proposed. There are other kinds of plums which require a more generous soil—of such are the Greengage, the Royale Hative, Coe's Golden Drop, Morocco, Precoce de Tours, Imperatrice, &c. To commence with the *grosser kinds*:—these, in a trained state, will begin to make very coarse shoots, from various parts of the tree, towards the end of May; and means must be taken to equalise the sap,

which these robbers would fain appropriate to themselves. There must, nevertheless, be no monopoly here; the whole system of the tree must be considered a commonwealth, and care must be taken that no ambitious Cromwell renders the affair nugatory. Coarse-growing plums should be more liberally disbudded and stopped than, perhaps, any other fruit except the fig. Of course the disbudding will take place first; but immediately on the heels of this operation the finger and thumb must be in requisition. If occasionally the spurs from which such robbers are produced possess few natural spurs, or the germs of them, and no fruit has set, they should be cut out altogether; this is far better than merely disbudding the robber, for there is always a tendency to a monopoly of this kind in a spur which has given birth to one of these coarse shoots, for the fact intimates at once that it has capacious sap vessels. This cutting away of old spurs may be rather extensively practised under the above circumstances, in a spring like this, when little or no sacrifice has to be made in the fruit of the season. On the removal, however, of those spurs, a substitute will be requisite, and this will be found in the practice we long since suggested in these columns of tying down a liberal amount of young shoots, annually, on the old wood, using such, after it has become somewhat stripped of its barren spurs, as a living trellis. This is no mere suppositions mode of procedure, neither is it a borrowed feather from a nobler plume; we write in all cases, or nearly so, what we have proved repeatedly; indeed, this tying down practice we have followed for at least ten years. Some other matters incidental to the season must now be proceeded with; and we leave the plum for the present, with merely observing that all the weaker-growing section will only require regular disbudding, or thinning out if you will, like most other trained trees; and that it is necessary to keep a sharp look out for the plum aphides—by some practical men termed the “dolphin-fly”—which bears a resemblance to that which infests the garden bean. If these cluster on the young shoots, apply tobacco-water from a syringe; if from shag tobacco, half a pound maximum will make a gallon; and, in the case of young trees, or where trouble is not a consideration, the ends of the shoots may be dipped in the mixture, by bending them down slightly before nailing.

THE VINE ON WALLS is now breaking into leaf, and we beg to remind our readers of the propriety of early disbudding. This cannot commence until the show for fruit can be distinguished. The amount of thinning of course must be dependent on the strength of the tree—better, however, thin rather liberally. For a healthy tree, we should say that there may be produced one bunch to every two square feet. Such guesses, nevertheless, can only serve as a rough guide to the most inexperienced, for soil, age of tree, and the former year's crop, should be taken into consideration. Of course the thinner-out will take care to leave the bearing shoots as equally dispersed as possible, in order that the larger leaves, which enter for the fruit, may have room for a perfect development, for on this much, *very much*, depends. Any shoots which are well placed to fill future blanks, and yet not fruiters of the present year, may be pinched back to a couple of eyes, and frequently stopped during the summer, thus forming a reserve for future years. We will return to the vine ere long.

R. ERRINGTON.

THE FLOWER-GARDEN.

ROSES FOR GROUPING IN BEDS (*concluded*).—There are so great a number of kinds of roses that answer admirably for bedding purposes, that we feel almost at a loss which to recommend in preference to others equally as good. We shall give a few more than are needful for moderate-sized gardens, but none but what are really good for the purpose. Our readers, consequently, need be at no loss which to have and which to reject.

White Damask—Madame Hardy.

White Provence—Unique.

Rose-coloured.—Common Moss. A bed of roses all of this kind is, when in flower, one of the finest sights the kingdom of Flora exhibits. The delicious fragrance and lovely hue of this beautiful rose, half shrouded, as it were, with a veil of green mossy spray, renders it peculiarly attractive and desirable. To grow it to the greatest perfection, you must take some pains; and before we describe the proper management it requires, we will observe that the same treatment will suit all the strong growing Provence, Damask, and Gallie (French) roses, when grown on their own roots as dwarf roses.

In the first place, the soil should be of a good loamy texture, made rich with very rotten dung. The plants should be put in early in autumn, and a covering of short dung spread all over the bed. The first year they should be pruned to three buds of the previous year's growth. In the autumn of the following year, fork the bed over, and lay on a fresh coat of rotten dung; then in the spring, early in March, procure a few hooked pegs, and peg down a sufficient number of the strongest shoots to cover the bed completely, shortening them in a few inches from the extremity of each shoot. Cut off the shoots that are not wanted, to the same length as you did the spring previously. The shoots thus pruned, and those pegged down, will send up short shoots, and each will have a bunch of fine flowers. Though the first year's bloom will produce some tolerable flowers, the second will be by far the finest. To prevent the bed being entirely bare of flowers in the spring, some patches of crocuses and snowdrops might be planted amongst them without any injury to the roses. In the autumn, after the roses have done blooming, cut off all the decayed flowers, and plant a few low growing annuals, such as *Nolana prostrata*, *Nemophila insignis*, *Leptosiphon androsaceus*, and others. These will serve to make the bed look gay when the glory of the rose has departed.

Crimson.—*Gallie roses*—Beaute vive, Duc de Trevis, Roi de Naples, and Washington. *Fairy roses*, white and red, are excellent for small beds. *Sweetbriars*—Double scarlet, La Belle distinguée.

We have now finished the list and description of roses for bedding purposes, and we hope our labour will be acceptable to such of our correspondents as have asked for this information.

Next week we shall try to give a list of the best climbing and pillar roses.

ROUTINE WORK.—*Neatness*.—Every part of the flower-garden should be now in the best order; the marks of care and industry ought to appear constantly. Lay it down as a rule to be strictly observed, that no weeds must ever progress beyond the seed-leaf. All flowers that require support with sticks should have them applied in the early stage of growth, and be tied to the supports every week as they require it. They are then safe from being

broken, either by their own weight or by heavy rains, or gusts of wind. To know whether your garden is in the best possible condition, visit now and then other gardens, and compare them with your own. Good examples of well ordered, well kept, and neatly managed gardens will have the effect of stirring you to imitate them in your own. Such as are comparatively neglected will act as a warning to you not to fall into such a slovenly way of management. By such comparisons you will be enabled to perceive any deficiencies which you would not have observed had you been constantly seeing no other garden but your own.

Decaying flowers ought to be cut off as soon as seen, especially those on bulbous roots, for by so doing you will strengthen the roots much. If you wish to save seeds of any kind leave a few seed vessels on, but take away the flower leaves, and tie the stems up with the seed pods, so as to give them as neat an appearance as possible. By no means cut off the leaves of your bulbous flowers until they turn yellow. This is an important point, to be strictly attended to, if you wish to have flowers the following season. Crocuses and snowdrops, on grass-plots that are constantly mown, soon disappear, in consequence of having their leaves prematurely cut off: these, however, might be saved by leaving little tufts of grass, where they grow, uncut.

DOUBLE WALLFLOWERS AND STOCKS.—Now is the time to put in cuttings or slips of these sweet-scented flowers. Set about this immediately. Take the cuttings off; smooth the bottom of the cutting with a sharp knife; strip off the leaves half way up, leaving about $1\frac{1}{2}$ inch with the leaves on entire; then plant them thickly under a hand-glass, in a shady part of your garden. If you can procure some fine sand, cover the surface with it about half an inch deep: this will help to prevent them damping off. Give a gentle watering to settle the earth close to each cutting; then place the hand-glass over them. The only care they require afterwards, is to remove all decaying leaves as fast as they occur, and to have a moderate watering whenever the surface appears to need it.

CHINA AND TEA-SCENTED ROSES.—Cuttings of these plants may now be put in, and they will make good strong plants by the end of summer: they will strike very well under hand-glasses, or even without anything over them, if put in under a hedge or wall having a northern aspect. Prepare the ground first by making it fine, breaking it with a spade in the manner described at page 14, vol. 1. Prepare the cuttings by cutting them off just below this year's growth; then, if you use hand-glasses, put them in in the same way as described above for the double wallflowers. If you have no hand-glass for them, put them in rows, as described at the page just mentioned. The best and quickest way, however, to propagate these roses is in pots, filled to within one inch of the top with light sandy loam, without any mixture whatever; the remaining inch fill up with sand of a close texture; give a gentle watering to make the sand firm, and then plant the cuttings close to the edge of the pot; place the cutting pots in a frame or pit, where there is a gentle heat, shading when the sun shines: they will root in six weeks.

Cuttings of a great number of plants will grow so treated, such as the large family of phloxes, penstemons, antirrhinums (snap-dragons), dianthus (sweet-williams), &c.

The *lawn* keep well rolled and frequently mown. The turf will then grow thick, and be of a good dark

green. *Walks* keep cleared from weeds, and rolled regularly, at *least once a week*. Read our remarks on rolling walks during the time of rain, and practise them. *Climbers* will require constant attention, in nailing the young shoots to the wall, or tying them to trellises or pillars, as the case may be. A little constant labour will save a world of trouble and vexation. When climbers are neglected for a length of time, the branches run together, and clasp each other so closely, that it frequently happens, in untwisting them, some of them get broken and bruised; whereas a small amount of care, properly bestowed at the right time, will have a good effect both upon the climbers and upon the minds of our amateur and cottage readers.

INSECTS.—Now that the warm genial weather of May has once more arrived, myriads of our patience-trying small enemies will be hatching into existence, and will prey upon the long-looked-for ornaments of our flower-gardens. Instant measures must be taken to arrest their ravages. *Red-spider.*—This small creature, almost invisible to the naked eye, will now be coming into life from the egg state, and will be actively engaged in sucking its food out of the buds and young leaves, and thereby crippling the growth of both leaves and flowers. As soon as you perceive the leaves of any kinds of plants appear to have brown spots upon them, you may expect the insect is feeding. Examine a leaf with a microscope, if you either have or can borrow one, and you will soon see him, like a red-coated soldier foraging in a corn-field, hard at work. The most effectual remedy we know of is soap water, made with one pound of the common brown soap dissolved in five gallons of hot water: this, applied all over the plant, at a lukewarm temperature, will destroy all the living ones. If you add about half a pound of sulphur vivum to the mixture, it will prevent the ravages of those that are yet in egg at the time of the application: they cannot feed upon leaves that are coated with sulphur, and so, for want of food, must perish. The mixture may be applied to plants out of doors, that is, to standard roses and climbers against walls, &c., with the syringe; as the insects are generally on the under side of the leaves, the end, or nozzle, of the syringe ought to be bent upwards, so as to enable you to reach the enemy in his most secret hold. If you can apply the mixture so as to wet the under side of the leaves thoroughly without the bent part, of course you need not screw it on. Plants in pots may be dipped over head in the soap water by placing a little moss over the surface of the earth in the pot, spreading your fingers over it to keep the soil in the pot, and reversing it; then dipping the leaves and branches into it, and immediately restoring the plant to its upright position. No red-spider can exist after such a bath. Syringe afterwards, in a day or two, with clear water, and your plants will soon show, by a renewed vigour of growth, the benefit of your trouble and care.

FLORISTS' FLOWERS.

We have so very little space left for this part of our week's paper that we can do little more than promise to write more about them next week. Still continue the protections by covering up every night, over tulips, ranunculuses, dahlias in frames, as well as verbenas, fuchsias, and petunias; giving plenty of air in fine weather to harden them off for planting out towards the end of the month. T. APPLEBY.

GREENHOUSE AND WINDOW GARDENING.

CAMELLIAS.—Let us now take the more pleasant division of this subject, and treat of camellias in a perfect state of health, which may easily be known by their glossy dark green leaves, and the wood of the last few years' growth being plumper, with a smooth bark, and with the bark on the last year's growth perfectly clean and shining. It is, indeed, a pleasure to attend to, and arrange for, the wants of camellias under such conditions, nor is it less so to go over the same ground with the pen. Let us, therefore, in this happy mood, begin with them just as they are going out of bloom, for the flowers are all over by this time. It makes no matter, however, at what time of the winter or spring they cease to bloom, the treatment must be the same; only when they bloom late in the autumn, or in the dead of winter, they will have a long rest before their growing season comes round; whereas those that come latest into flower—say in April—can hardly be said to get any rest, as they are in active growth soon after the flowers drop off; but whether the time be long or short the plants ought to be kept cooler than when they are in flower, and to receive no more water than will keep the soil from getting quite dry. The longer they are kept in this comparatively cool dry state, being their natural resting time, the more vigorous they will grow, and the stronger they will be to carry out a heavy load of their charming flowers. Gardeners are often obliged to break these rules, and force their camellias to grow and form their flower buds at unnatural seasons, but with that we have nothing to do at present. Therefore, after the camellia bloom is over in-doors, or in a greenhouse, the plants ought to be removed to a cold pit, and the cooler it is the better, if the frost is excluded; there to remain and to receive as much air as the season will allow, and as little water as will keep the soil a little damp, until every bud that is likely to grow that season is fairly started into leaf, so that the whole will be on the move without any artificial stimulus, but merely by their own natural effort. It is well worth while to bear this point in mind, as much of the success depends on it, simple though it be, and the reason is this,—if a liberal supply of water is given at this stage, and a snug warm room or atmosphere is allowed them between flowering and breaking into leaf, the buds at the extremity of the shoots will push into leaf long before those less prominent are ready to follow them, many of which may not be able to push at all, as they must be deprived of their due share of the ascending sap, which will flow more readily into those that are already in action, just like a badly managed pear-tree, in which you may see some top shoots strong enough to make fishing-rods, and others, nearer the bottom, not stout enough to support a robin, much less a crop of fruit. Therefore, when camellias have done flowering in a warm room, or in a good greenhouse, they ought to be removed to a cold pit to take their natural rest, there to be supplied with all the air which the season will allow of, and as little water as will only keep them from actual dryness; merely a damp atmosphere at this time is enough, and if the frost is just excluded it will be warm enough for them until new leaves appear all over the plants, when the tables must be turned, and a very different mode of management be adopted.

Take advantage of a fine day on which to turn them out of the pots one by one, and examine the

state of the drainage. Undo all the crocks that will adhere to the ball, and re-arrange them carefully in the pot, placing a layer of fresh moss over them; return the balls without any additional soil, the process being only intended to secure a thorough drainage; then scrape away the old surface of the ball down to the first roots, and replace it by fresh soil, and the whole are then ready to set to work in earnest. Give them a good watering, and set them in the pit again, but instead of abundance of air as heretofore, keep them rather close, not opening the lights till after breakfast time, and shutting them down again as early as three in the afternoon; and if the sun is at all strong the glass must be shaded from nine in the morning to four or five in the afternoon, for the young leaves are extremely liable to be scorched or disfigured while in a soft young state. When the day is warm they ought to be sprinkled overhead with water, through a fine-rose pot or a hand syringe, twice a day, a little before noon, and again when they are closed down for the day; this will keep the atmosphere of the pit damp, and a hot smoking vapour will arise from the confined heat in the afternoon, so that instead of a cold pit you have them in a regular Calcutta stove. Yet, before sunrise next morning all this is cooled down to such a degree as would be apt to give one the ague, a state of things most natural and grateful to vegetation in vigorous health and growth. How often have we read of travellers complaining of excessive heat under a vertical sun, and the oppressive vapour arising from periodical rains in the tropics, and yet the cold so piercing before sun-rise as to make their teeth chatter; and, notwithstanding all this, we can form little idea in our latitude of the excessive luxuriance of the vegetation in those climes. Therefore, let us imitate this state of things if we wish our camellias to excel in beauty, instead of following the misguided notions of other days, when house-plants were subjected to the unnatural treatment of being kept in an uniform temperature throughout the twenty-four hours, depriving them of their daily rest by artificial heat during the night; let us rather push them along by assisting nature, and they will do so at such a rate by this natural system as that you might almost see them growing. In about six weeks, if all has gone on well, most of them will have finished their growth, and more air may then be allowed them; but still shade them, and keep up the atmosphere warm and moist around them, until their flower-buds are well set, which you may easily know by their being so much more prominent than the common wood-buds. This brings us to the end of the second stage of our management, and we must now steer on a different course.

The plants have been rendered so excitable by the foregoing treatment, that if continued much longer they would willingly make another growth, and the flower-buds would develop themselves into fresh shoots, much longer than the former ones; I have even seen young camellias forced to make three growths in one season, and each growth longer than the preceding one; those were very rare ones, and were hurried on in order to get more increase from them, as every bud on a camellia may be turned into a new plant, like budding-roses, but not after the same manner. More light, more air, and less water, both at the roots and overhead, will now settle them down, in two or three weeks, to the ordinary conditions of healthy good-looking plants, and then they are ready to be fresh potted. But let us first see how far we have advanced in the season. If we

suppose the plants to be put into the cold pit about the time this letter sees the light, say the first week in May, the growth finished by midsummer, and the cooling down period to be full three weeks, we are then in the second week in July, and any time between that and the middle of August will do equally well to pot them. However, those that are intended to bloom from November to Christmas ought to be potted as soon as they are ready for it, and the spring flowering ones will not suffer any loss if they are not potted till the first week in October. For some years I potted a large assortment of these plants, in number very hard upon 500, including 93 sorts, some in the first week of August and the rest in the first week of October, and they were as healthy and flowered as well as one could wish. At that time I used to get annual supplies of new seedlings from Italy, Germany, and Belgium; the Italian ones chiefly raised by Dr. Sacco, of Milan, then the most celebrated grower of this class in Italy; the German seedlings I had from M.M. Rinz and Grüneberg, of Frankfurt-on-the-Main; and the rest from Mr. Mackay, of Liege, names well known in plant circles here; but I have a sad story to tell about all these by-and-by. In the meantime let us pot the first succession of these plants.

If one could procure that kind of soil which old gardeners and old gardening books called mellow loam, because a handful of it in a dry state would feel to the touch like new flour from the mill, and a little sand added to it, there is no mixture that can be made in which the camellia would flourish better. I have used it near London for some years in the pure state from three different localities.—Norwood, the Essex Flats, and Stanmore Common, north from Edgware; but as this particular loam is very difficult to be had in most places, one-third good peat is generally added to the best loam that comes nearest to hand; and, with a little sand, this mixture does very well if the pots are kept well drained. They are potted like other plants, but the drainage ought to be more perfect for them, as if they bloom in winter they will require a liberal supply of water, and of liquid manure too, all the time they are in bloom; so that unless the drainage is very good, there would be great danger, at that dull season, of the soil getting soddened, and the roots of camellias, notwithstanding the apparent strength of the plants, are as susceptible of injury as those of a Cape heath.

They should never receive a drop of liquid manure all the time they are forming their new wood, nor until after the flower-buds are all set, but after this potting they would flower much stronger if they had liquid manure once a week from this time till they are out of blossom. Those that are to flower in November may be returned into the pit after potting, and kept a little close for a week or two, and also shaded a little, and after that in all fine weather the lights may be drawn off every afternoon, so that they may have the evening and night dews, and the lights drawn over them after breakfast time. In cold, rainy, or dull weather, let the lights be on, but let them be well aired.

I see no reason, with these simple rules, and such humble contrivances, why you should not have as fine a show of bloom as any gardener whatever. Such, then, are the simple means by which the camellia may be kept in perfect health for nobody knows how long. It is not by any very extraordinary exertions of mind or body, but by a close and steady adherence to the simple laws of nature that we are to look for success in gardening.

In the second place, let us consider the best means of restoring unhealthy camellias to a vigorous state, and the first step in this process is to ascertain, if possible, the cause of the disease, for without some knowledge on this point the doctor can only prescribe at a venture. The cause of nine-tenths of the failures experienced in the cultivation of this, and all other plants, must be looked for at the roots. In the first stages of a disease many of the roots may have perished without any visible change being evident in the leaves or branches, for the camellia will not die off at once, like a heath and many other plants, but will struggle on for months, and even years, before the case is hopeless or beyond a cure.

The first symptoms of diseased roots will not become manifest, without examination, until the growing season comes round. At this stage, the natural energy of the branches being not seconded by the enfeebled roots, a stunted growth of short-jointed wood, and a profusion of flower-buds, are the sure consequences. Now is the proper time to adopt measures for arresting the progress of the disease; and, instead of allowing the plant to spend its remaining strength in producing this heavy crop of bloom, every one of the flower-buds should be cut off at once. Thus the strength and substance necessary for maturing a crop of diminutive flowers will be saved, and will then be expended in strengthening the wood-buds for the next growth. If the roots, in the meantime, are judiciously treated, the chances are that they will be in a fair way to support a healthy growth next season; and, if so, this plant may take its place among the first class of healthy ones; but, to ensure a permanent health, it should not be allowed to bloom too freely for the next year or two.

The best treatment for diseased roots is to shake off as much of the old soil from them as can be done without breaking them; then to cut back such as are already dead at the points, and also those that appear anyways cankered or unsound, and to repot them in the smallest pot that will hold the ball with a little fresh compost all the way round, and this compost to consist of equal parts of loam, peat, and sand, with a thorough good drainage, and for the next three months to keep the plant in a close, cool pit, with a damp atmosphere and a low diet, that is, as little water as will keep the soil from getting too dry. If you were to double pot it, and keep a layer of damp moss on the top of the soil, with constant shading, once in ten days would do to give it water, even in the height of summer; and surely a favourite plant is worth a little petting.

Now, let us suppose that this plant has been neglected during the first stage of the disease, and that it was allowed to bear that large number of blossom-buds, which, when they were about three-parts grown, would begin to drop off; the plant, through sheer inability, not being able to carry them any longer; and those of them that would open, what would they be? Nothing better than mere abortions. Bad as the state of this plant is, I shall give you an instance out of many which are in a much more hopeless condition at this moment in many parts of this great gardening country; but let me first tell you that the plant under consideration is to be treated exactly as in the former case, with this addition, that all its branches must be cut down one-half their length; and this comes of letting it go so long without attempting a cure.

If I were writing on this subject fifteen years since, I should end here about culture and cure, and treat

of their propagation; but, since that time, a great misfortune has befallen the English amateur, arising out of the camellia trade, which, a sense of justice to a large class of amiable readers, will not allow me to pass in silence: I allude to the sales of continental camellias in London, not one out of a hundred of which would be cheap as a gift, and yet they seldom want health and an abundance of flower-buds, which expand freely on their first arrival; but, on the continent, they invariably grow the camellia in a soapy kind of peat, which cannot be obtained in England. When the plants are not fresh potted annually, as those sent here for sale seldom are, this kind of peat gets so hard and close, and the roots are so cramped in it, that all the gardening in this country can seldom force the plants to root in our compost or separate them from the continental peat. The result is soon told. In a few years they dwindle to nothing; and people take up the idea that camellias are difficult to manage, and also that peat is essential for their proper cultivation; and all this prejudice, vexation, and trouble, arise from "these cheap sales." Cheap, indeed!

D. BEATON.

THE KITCHEN-GARDEN.

ANGELICA.—The crops of this vegetable which have been already sown should now be well thinned. As soon as the plants are found to have one leaf besides the seed leaves, they should be singled out to three or four inches apart. If any failures are observable in any of the rows, lose no time in taking up such plants as can be spared from the thickest spots, and transplanting them to the vacant places. If large, crisp, clear stalks of this article for confectionary purposes are required, single out the plants at the last thinning from eighteen inches to two feet apart. To encourage a rapid growth at this season liberal soakings of liquid manure must be applied. Soot also, either mixed with water or applied with the liquid manure, is very serviceable to this crop.

ARTICHOKES.—The stools should now be thinned of all weak or superfluous suckers; and where new plantations are required, they should be made by carefully taking some of the strongest suckers and planting them singly in rows, two feet apart, or in pairs, leaving three feet between each pair, and four feet apart from row to row; shading them at first with sea-kale pots, or with a few boughs, until they are safely rooted.

ASPARAGUS.—The season for cutting this vegetable has now commenced, and some care is required in this operation, lest, in thrusting down the knife, any of the buds just starting from the crowns should either be cut off underground, or be so much injured as to become useless; the knife should be carefully placed, and thrust down quite close to the shoot intended to be cut or broken off. Diluted liquid manure may now be applied at intervals, and a little salt added. To beds that may have been planted last season, and that are not intended to be cut from this year, liberal applications of liquid manure should be given; and if showery weather prevails, so much the better, as the liquid manure may then be applied stronger and with greater benefit.

ROUTINE MANAGEMENT.—Look well to the *carrot*, *parsnip*, *onion*, and other spring-sown seeds, as, owing to the last having been a bad seed year, and the last

month a most unfavourable one for the growth of all seedlings, many vacancies may occur in our beds that will render transplantation necessary; and this must be attended to with the greatest energy, or a falling off in the produce of the forthcoming autumn will most assuredly be the consequence.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 27.)

WHAT lovely, graceful blossoms now hang from the slight boughs of the ribes, or flowering currant and gooseberry! How rich, how delicate they are, and how refreshing is the scent of the red-flowered black currant! I wish these beautiful varieties were more general in our gardens, for they would add materially to their spring loveliness; and they are hardy enough to decorate the simplest garden, and would improve the cottage border without expense or trouble. They, too, are natives of California, where they grow wild among the woods, and flourish with the richest luxuriance near rivers and streams. I sometimes see a little stream passing through the garden of cottages, or a wide brook forming its boundary; and the banks are in most cases neglected and wasted, growing nothing but rank grass, or weeds, or briars. Such banks are particularly favourable to strawberries, and they may be cultivated with profit; or, if ornament is preferred, let the beautiful ribes be planted there, and rejoice in its cool refreshing situation. It will spread and droop gracefully over the water, and give the little garden an air of liveliness and elegance that will contrast well with the deep green, serious-looking laurel, evergreen oak, or yew. The white-flowering gooseberry, with its pure wax-like bells, is a lovely variety, and should be grouped with the darker flowering plants. We might thus beautify many places that disfigure our gardens; for in country villages and lanes a horse-pond or wet ditch is frequently found close to the cottage hedge or pailings; and a very little time and trouble might make the bank neat and convenient for the growth of flowers or fruit. There are several varieties of the ribes, and they may all be increased by cuttings. A common soil will be quite sufficient for them. Thus they are peculiarly adapted to the unlearned gardener, who, like myself, may know nothing of culture, nor be able to procure the composts necessary for more tender plants. There is, however, one plant so beautiful, that I must make interest for it, if possible, in a lady's garden; I mean the magnolia. Against a sunny wall, or in a sheltered situation, it will do well, if protected during the winter; and it is really worth some little petting if a garden possesses a situation favourable for its growth. Magnolia plants may be transplanted now; they may also be layered either at this time or in the autumn; and they may be increased by cuttings, only this process will require a hotbed, which few of my peculiar readers will possess. When layers are made, the young plant shoots should be chosen, and a slight twist given, or a slit, in the part which will be covered with the soil. In a year, sometimes, the layers will be rooted, but in some cases this will not be effected till the second season, so that this is rather a tedious way of obtaining plants. Procure them already rooted, if you can.

The large rich flowers and long glossy leaves of this noble plant make it a beautiful addition to the lady's garden. In the southern counties it would no doubt succeed extremely well, and repay some little increase of care and watchfulness. A garden *totally* without anxiety almost ceases to interest the mind, which naturally requires something about which to busy itself; and, therefore, if a lady can contrive to cultivate one or two half hardy plants, her garden will amuse and excite her much more agreeably than when she has nothing to fear from pests or rain. To mat up her magnolia, to give air and water to her myrtle and camellia japonica, will be a little pleasant inducement to take the air herself, when the chilling winter day would otherwise keep her closely within doors; and it will always be interesting to watch their spring shoots coming forward, and mark the promise of their beautiful flowers, which will add so greatly to the richness of her summer garden. Let a magnolia, therefore, if possible, clothe some sunny "gable end;" it will remind us of the great western world, from whence it comes, so vast in its proportions, that its lakes and rivers, its very trees and plants, are larger than those of Europe, and surprise us by the size of their leaves and flowers.

Myrtles may now be layered, but the youngest shoots only should be chosen. Stir the earth well round the plant; and then let the tender twig be bent into the soil, and often watered. They may be removed *next* spring. Layers may be made till May. If any old neglected plants should have thin heads, they may now be treated in the following manner, if they have been kept through the winter in the house—take them out of the pot, prune the roots, by removing all that is old and weak-looking, replace them in good fresh soil, and then cut down their head branches till within three or four inches of the stem. By this management, they will shoot about the time they are placed out, and, with shade and water, will make fine plants this summer.

That beautiful and useful plant, the Virginia creeper, should be planted now. It is so bright an ornament during the dark unlovely season when flowers are gone, that it should be placed in every possible nook, against every wall, trellis, and veranda, to mix with the dark green ivy, and to cheer us when our walls would otherwise be bare. It will strike from cuttings or layers, and the latter operation may be effected now; but by procuring a rooted plant time will be saved. The Virginian creeper is almost a singular instance of leaves turning as it were into flowers, to please the eye and enrich the garden when nothing else is left. It is another proof of the tender care of our Heavenly Father, who hand bestows so many blessings, and who deigns to regard even our simplest pleasures, and provides them all. The glowing creeper delights the eye when every twig is bare, and every flower has faded; we gaze with pleasure on its brilliant foliage, and value it as a floral treasure. Let us remember that its lovely peculiarity is meant to please our eyes, to enliven our cheerless winter, and to raise our thoughts to Him who speaks in every thing around us, whose voice sounds in the breeze, in the shower, and in the snow storm, and whispers in every beautiful object moulded and given by His hand. Since our smallest enjoyments are not beneath His notice, but are so graciously provided and encouraged, let us trust Him for the greatest blessings our hearts can need or desire. Let our thoughts wing their way from earth to heaven—from the beautiful things we see to those glorious things we cannot see—and

let us remember, with overflowing hearts, that our homes and our gardens, gilded and gladdened as they are, shadow forth but coldly and dimly those "many mansions," whose glories fade not, and whose "fashion passeth" not "away." Let not the things of time deaden our hearts to those of eternity.

TO CORRESPONDENTS.

LATHYRUS CALIFORNICUS (*One whom a Garden makes happy*).—You can obtain this species of everlasting pea from Messrs. Henderson, Fine-apple-place, Edgeware-road, or of any other seedsmen who advertises in our columns. Its flower is purple; height four feet; blooms in June and July. It was brought from California in 1826. If your large-flowered Lathyrus is pink, it is probably *L. grandiflorus*. Thanks for your information about *Foraythia viridissima*.

MELILOTUS LEUCANTHA (*A Subscriber, Nottingham*).—Messrs. Gibbs and Co. or other large dealers in grass seeds may have it. Grow it from seed if you can.

PEAS (*A. Y. Z.*).—On your heavy Highgate soil they will grow slowly. Spreading an inch in depth of coal-ashes close up about the stems, and three inches on each side of the row, will promote their growth. Knight's Dwarf Marrow would probably suit you.

MOSS ROUND PLANTS (*Rev. P. S.*).—Moss upon the surface of the soil of all potted plants is beneficial; and it is beneficial to put the pot into another an inch wider all round, filling the interval with moss.

SOCIETY FOR INTERCHANGE OF PLANTS (*Ibid.*).—The intention is good, but there are insuperable obstacles in practice. Management, advertisements, lists, postage, and carriage, would cause expenses eating up all the benefits derivable from the exchange.

CAPE GOOSEBERRY (*Ibid.*).—This, which you rightly suppose is of the same family as the love-apple or tomato, and has potato-berry-shaped fruit, yellow when ripe, is *Physalis edulis*. We never met with it preserved, but are not surprised at its pungent juice irritating your throat. We will insert your other suggestions.

PLANT SUEBING ITS BLOSSOMS (*A Subscriber, Martock*).—The blossom enclosed, as far as we can make out, considering its bruised state, is not a fuchsia, but *Cephaelis*. The cause of its shedding its full-sized but unexpanded blossom is, probably, that the temperature of the place where you grow it is too cold and too dry.

JACQUELLE PEAR (*Somerset*).—The black blotches on the leaves and blossom-stalks of this have been caused, we think, by the severe weather which happened about the 17th of April. Nothing but canvass shelters, and not allowing the sun to shine upon it early in the morning, could have prevented this.

REINE CLAUDE VIOLETTE PLUM (*Ibid.*).—The top bud of the leader of this newly-planted plum has been broken off, and a small bud is forming near the wound, but the bud next below has produced a very strong shoot. We recommend you to rub off the small upper bud, but not to cut off, until autumn, the stump from whence it sprigs; and to adopt the very strong shoot for the leader.

OVER-HEAD WATERING-POT (*W. D. Paine*).—This (sometimes called "a shelf watering-pot") is a flat vessel, like a very flat teacanister, with a short spout perforated with holes, and is intended for watering plants "above the head" of the operator, and too near the glass to admit a watering-pot of the usual shape. They may be had of any dealer in horticultural implements.

BAG, PEAT, AND HEATH MOULD (*Ibid.*).—These names are usually employed indiscriminately by gardeners, and all correctly use, without distinction, the terms *peat* and *heath* mould; for by these is intended that blackish soil, interspersed with sharp white sand and small fibres, found upon the surface of dry soils where the common heath abounds. *Bag earth* ought to be distinguished from this, because though it is a peat, that is, a mass of dead vegetable fibres, yet it comes from wet places, and usually abounds with acid and iron matter, with a very little sand, and is not suitable for general plant culture.

SWEDISH TURNIPS (*Jethero*).—This root is not less liable to run to seed if transplanted, nor do the turnips from transplanted plants attain so large a size, generally, as those not transplanted. At the same time, we recommend you to have a small bed sown for transplanting, because the mildew or turnip-fly may thin the ranks of your main crop, and the gaps must be recruited. *Sirings* keeps the best, but it runs more to neck than *Leings*; we advise you to grow some of each, and to use the *Leings* first.

MOLES (*Ibid.*).—We do not know of any mode of driving away these friends of the farmer and gardener. They live upon wireworms and other underground vermin; and we could quote an instance of a field that was useless from the number of wireworms in it. The moles came to it, and after burrowing it all over, left it for the neighbouring fields; but they did not leave it until they had eaten up the wireworms and rendered the field safe for cropping.

DESTROYING WEEDS (*Y. R. Putney*).—You will have no difficulty in destroying the weeds which spring up in your stable-yard between the large stones with which it is pitched; have them rooted out with a knife, and then sow the whole yard thickly with salt. Repeat this thick sowing whenever you see a weed reappearing.

BROAD BEANS FAILING (*Alphr.*).—Your Maragan beans failing in patches seems to be caused by the young plants at first coming forth meeting with something in the soil that destroyed them. The beans are sound and vegetated well, judging from the samples you have sent. You probably sowed the salt too thickly in the places where the failure have occurred. We do not, under any circumstances, like sowing strong manures over the soil into which seedlings must first push their way.

TIME FOR RIDGING CUCUMBERS (*A. B. C., Brecon*).—This is entirely dependent upon the season; when we say "now is the time," we mean that then, and at any time afterwards during early summer, cucumbers may be sown on ridges. If you want a rule for knowing when a cucumber seedling is fit for planting out, it is when it has two rough leaves, each two or three inches broad.

VINEGAR PLANT (*E. T. and J. N., Bristol*).—This plant is not known in the neighbourhood of London, but we are making inquiries in other quarters.

PLANTS FOR MARKET PURPOSES (*J. W. Burgess*).—We will get your inquiry answered privately.

COCKLE AND MUSSEL SHELLS (*J. K.*).—These can be burnt into lime, the same as oyster shells, and would then make as good manure.

CHOU DE MILAN (*D. A. H.*).—This is quite different from the Couve Tronchouda.

NEMOPHILA MACULATA (*W. J.*).—This is an annual. See its history at p. 40, vol. i. Portfolios for THE COTTAGE GARDENER are sold by Mr. Low, Fleet-street. We think that if you look into our pages to-day, and into previous numbers, you will find all the information you require about roses.

CYCLAMEN (*Frederick*).—The best soil for them is light garden-soil mixed with a little leaf-mould or rotten stable-manure. See p. 91 of vol. i. for full directions as to their culture. To destroy ants in your wall, see p. 31 of present volume.

MYRTLE-LEAVED ORANGE (*J. N. B.*).—You say that this is only 18 inches high though twenty years old, that it has never ripened any fruit, and that now the tips of the branches are dead. Your plant is the true myrtle-leaved orange, a variety of the common Seville orange, and called by botanists *Carus vulgaris myrtifolia*. Of all plants it are the most tenacious of life; the ball of your plant is probably so close and hard as to exclude air and water. Pick off as much of the old soil *near* as you can; trim any dead roots, and report in pure loam, and one-third sand, and also one-third of the whole of very small charcoal, not dust; the charcoal will keep the mass porous, and is a good corrector of sourness in the compost.

CHICORY (*A. Salsarier*).—The report we gave about this is correctly printed. The profit is large, because the consumption is great, and the competition limited.

HYACINTH BULBS (*A New Beginner*).—Plant these from your water vases into a sheltered border without injuring their roots or leaves, and do not take them up for drying and storing until the leaves are dead. Next year, if planted in the border, they may bloom weakly; but will bloom strongly the year following, if properly manured.

MELON SOIL (*An Amateur, Eaton Socon*).—The best soil for melons is the top spit from a rich pasture, chopped fine, without any addition. If the pasture is not very fertile, mix thoroughly together eight parts of the soil, with one part of very decayed dung, with a little rubbly charcoal.

DESTROYING RATS (*Amicus*).—Try the "phosphorus pills" prepared by Mr. Purser, Chemist, 40, New Bridge-street, Blackfriars. We cannot say when Mr. Barnes will be ready with more information about *charured refuse*.

BRAGANZA CABBAGE (*Clericus R.*).—We believe that this is the same as the Portugal cabbage or borecole noticed at page 104, vol. i. Our answers to correspondents are included in the index. If any are omitted it is the result of accident.

BEGONIA FUCHSIANA (*C. R.*).—You will have seen your first note answered at p. 62. It is quite unavoidable that a deluge of some days must elapse before questions can be answered.

OLEANDER (*W. H. G.*).—You observe that, at p. 267, vol. i, Mr. Beaton directs that "one-half of the flowering branches must be cut down every year to the joint just from the old wood," and that he, further on, adds—"Such of the shoots as you intend to cut down ought to have the three plates of the shoots round the flowers stopped as soon as they appear. This will throw the whole strength of the branch into the flowers, and will cause the bottom eyes to push out three strong shoots, as soon as you cut down the branch after flowering." You justly observe that these two passages are difficult to reconcile; and this is Mr. Beaton's reply:—"We are glad that you have given us an opportunity to clear up the obscurely worded passage. It should run thus, 'As the young shoots start off in three round the flowers, and begin to lengthen long before the flowers expand, such of the shoots as you intend to cut down next spring ought to have the three points stopped, &c.' Write the words in italics on the margin, and the passage is clear enough, as may be exemplified by your own oleander, now showing flower-buds in 'two tiers of shoots, one above the other.' If you mean to keep this plant low and bushy, the shoots of the upper tier must be cut

down next spring; therefore, it is only wasting the energy of the plant to allow them to make any young wood this season. If, on the other hand, you wish your plant to get taller, allow the top shoots to extend, and those of the low tier will be cut down next spring; therefore, allow them to produce no young wood this season." Our readers, therefore, are requested to insert the words "next spring," after the word "down," in the second line from the bottom of the 1st col. of p. 267, vol. i.

CACTUS (*A Working Man*).—Your cactus you say is covered with dust, and "the soil has got as dust." You may easily clean it with a sponge and water. You must water it regularly till next September, and then let it be dry through the winter till March. The right way to water such dried plants, at first, is by placing the pot in a saucer of water till the surface soil looks damp; and to repeat this once or twice a week afterwards as they appear dry.

PICKLEY PEAR (*Ibid.*).—The plant, "with four large leaves growing one out of the other, flat, and similar in appearance to a cucumber," is a kind of prickly pear or opuntia. It requires the same management as the cactus. It is no beauty, only a curiosity; your *green-edged auriculatus* are capital; we like that sort best.

AGAVE LYBICA (*Ibid.*).—When your white azalea indica has done flowering, put it afresh in peat, and give it a liberal supply of water. It is a very good plant, well calculated for a window. For further directions look over the first volume. Hot-beds are "logged" in to suit others, and you shall have one some of these days; the sooner the better.

HEATING AIR OF PIT (*Infelix Tyro*).—You obtain a sufficient bottom heat by means of pipes passing from your boiler under the soil resting on slates, but you cannot sufficiently raise the temperature of the air of the pit. The remedy is very simple. Have another flow and return pipe (two-inch pipe will do) fixed to your boiler; but the pipe running round the upper part of your pit within the air to be warmed. This pipe will not interfere with the operation of the pipe which gives your bottom heat.

NAME OF INSECT (*W. S., Dalton*).—The "worms" you enquire are wireworms, being the larvae of a small beetle known to entomologists as *Elater lineatus* and *E. segetis*. We condole with you on their "abounding in your garden," and on their "destroying nearly all your cloves and pimientos," by eating away their roots. We can tell you of no other remedies than those mentioned at p. 62 of our last number. Your other questions shall be answered in our next.

CLIMBERS FOR S. WALL (*A. B., Somerset*).—We think that against your sheltered south wall, if the roots and stems are well protected in winter, that the *Habrothamnus fasciculatus*, *Solanum jasminoides*, and *Clematis patens*, might be safely cultivated.

PANSIES AND FUCHSIAS (*Lumans*).—They can all be had of the party you enquire.

A FLOWER-LOVER FROM CHILDREND is thanked for her excellent communication. Some of her queries will be found answered in numbers since she wrote. We will insert her letter in our double number.

FINOCCHIO (*A Subscriber*).—You will not succeed, we fear, in cultivating this, which you call "Florence Fennel." Sow in drills two feet apart, to remain where sown. Scatter the seed two inches apart, and half an inch deep. Sow in a slight holed, and under a frame. The seedlings must be small-hoed to kill the weeds, from which they should be kept completely clear throughout their growth; but at first only thin to three or four inches asunder, as it cannot thus early be determined which will be the most vigorous plants. After the lapse of another month, they may be finally thinned to seven or eight inches distance from each other. Moderate waterings are required throughout their growth during dry weather; and in the aeriation of hot days the beds are advantageously shaded, until after the plants are well up. When of advanced growth, about ten weeks after coming up, the stems must be earthed up to the height of five or six inches, to blanch for use, which will be effected in ten or fourteen days. In the whole, about twelve or fourteen weeks elapse between the time of sowing and their being fit for use. In autumn, if frosty mornings occur, they should have the protection of some litter, or other light covering.

THE COMMON STOCK (*W. F.*).—You say your stocks die in the spring of the year and never come into fine flower. You grow them too strong; or, in other words, they are too rich for them. Again, you sow too early and transplant too late. The stock is a native of the south of France, on dry gravelly hill sides. This ought to be imitated as much as possible. Sow your seed very thinly on a gravelly or rather poor loam, about the end of May; let them remain in that place to flower; or, what is more sure, sow some in pots and protect them from the heavy rains of winter in a cold frame. The stock has a wiry root which will suffer from a wet soil in cold rainy weather. They die off suddenly from being overgrown with moisture. You will find the roots that are deep in the soil quite fresh and lively, and the top of the plant also alive and green; but the part between the light and darkness will be quite decayed, and the bark will rub off with a touch of the finger. To prevent this, grow your plants rather weak during the summer and winter, and apply a little liquid manure in the spring to bring fine flowers to perfection.

WEEKLY CALENDAR.

M	D	W	Plants dedicated to each day.	Sun. Rises.	Sun. Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
			MAY 17—23, 1849.						
17	Th	Ascen. Holy Thurs. May-fly appears.	Early Red Poppy.	7 a 4	45 a 7	2 3	25	3 53	137
18	F	Midge appears.	Mouse Ear.	6	47	2 29	26	3 51	138
19	S	Dunstan. Broods of Starlings fledged.	Common Monk's Hood.	4	48	2 56	27	3 49	139
20	Sun	Sun. Ait. Ascen. Sailor Beetle appears.	Horse Chesnut. [flower]	3	50	3 26	28	3 46	140
21	M	Sun's dec. 20° 19' N. House-martin builds.	Ragged Robin or Cuckoo.	2	51	3 58	29	3 42	141
22	Tu	Trinity Term begins. Raspberry flowers.	Yellow Star of Bethlehem.	1	52	sets	30	3 38	142
23	W	Greasy-Fritillary Buttery appears.	Lilac.	III.	54	9 a 11	1	3 34	143

ASCENSION DAY.—From a period not less remote than the first century after the birth of our Lord, has the Thursday next but one before Whit-Sunday been the day on which His ascent into heaven has been celebrated (Lake xxiv. 51). Even in the laws of Alfred the Great it is mentioned as "The Holy Thursday;" and we must all, as Christians, acknowledge and love to foster the remembrance of "The glorious Resurrection and Ascension." There is one elegant custom still observed in some parts of England on this day, which, far from considering "more honoured in the breach than in the observance," that we wish it were more associated with thoughts of "the fountain of living water," and more generally observed. We allude to the "the well-dwelling," at Tissington, in Derbyshire, and elsewhere.

"Still Dovecote yield thy flowers to deck the fountains
Of Tissington upon its holdity;

The custom long watered, and among the mountains
Should not be lightly left to pass away.

They have their moral; and we often may
Learn from them how our wise forefathers wrought,

When they upon the public mind would lay
Some weighty principle, some maxim brought

Home to their hearts, the healthful product of deep thought."

At Tissington, the day is a day of entire festival; and the remembrance of its yearly household gatherings softens the hearts of many wanderers from its homes in distant climes, and who were there in "long, long ago." All the wells of the village, five in number, are wrestled and galvanized with flowers. The villagers go on their holiday attire; friends "from afar and from hard by" gather to them; service is performed at church, a sermon preached, the wells are visited in succession; the psalms, the gospel, and the epistle for the day are read, one at each; and the day is concluded by the villagers gathering round the "wells," and within their own wicket-gates. Shafesbury "hymant," an offering from this town to the well at Motcombe, whence comes its supply of water, had its origin from similar feelings of gratitude.

DUNSTAN, after whom so many of our churches are named, if divested from all the miraculous absurdities with which his history has been disfigured, will be found, as is observed by Mr. Sharon Turner, to be "a character formed to set a distinguished part in the varied theatre of life." He was a scholar and a man of science, therefore the ignorance of the age confounded his knowledge and his experiments in the laboratory with magic and its incantations; but he became a courtier, and fell: for the mitre of Canterbury, to

which he attained, only served to exhibit more prominently his ambitious and his remorseless nature. He died A.D. 988, without any title to be remembered in our calendar but as a warning.

PHENOMENA OF THE SEASON.—The Rev. John Byron, writing from Killingholme, in Lincolnshire, has favoured us with the following interesting and seasonable notes—"I send you the dates of my having seen the first swallow for five years past—1845, April 21; 1846, April 14; 1847, April 27; 1848, April 13; 1849, April 26. This village is situate two miles from the Humber; and, I believe, swallows may almost always be seen besides its banks two or three days, or even more, before they are seen at the village. I think a good description of that too well known pest, the wireworm, its history and its changes, with a statement of the best method of banishing it—for, I fear, to destroy it is impossible—would be generally interesting. You must have seen it stated that moles and partridges prey on it; but, in cottage gardens, such remedies could not be resorted to. I am inclined to think that soot and water will generally succeed in expelling it, having found it do so this spring in a cucumber-frame, but I should be glad to hear the opinions of some better informed correspondent. It is now pretty generally believed that all stories about the hedgehog forecasting the milkmaid are utterly groundless; and I see that Rusticus (quoted in Chambers' Journal of last February,) brands them as "horribly unbelievable." Be that as it may, I always find the gipsies adhering to the old notion; and, though I am aware that the authority of these gentry is somewhat questionable, I still feel so much weight to give some weight to their testimony on this point for several reasons. First, as they regard the hedgehog, at certain seasons of the year, "a dainty dish to set before a king," they may be supposed likely to be well acquainted with its habits. Secondly, their poaching propensities lead them abroad at an earlier hour than most other persons; and they assert that the theft is committed (to use the words of Southey)

"Before the cow from her resting-place
Has risen up, and left her trace

On the meadow with dew so grey."

And, thirdly, they could have no object in deceiving me in this matter. If they could in any way be gainers by telling an untruth, I much fear that they would not hesitate to do so; but I cannot but agree in their testimony unless it were correct, and when nothing could be gained by it." Another correspondent, writing to us from Wells, in Somersetshire, says he heard the cuckoo there for the first time this year on the 27th of April.

INSECTS.—Mr. Westwood has justly observed that of the leaf-destroyers the most injurious species are those which live in society, enclosing themselves in a common web. One of these is the Small Ermine Moth (*Yponomeuta padalis* of some, and *Phalana eromyleta* of others). In some seasons, the caterpillars of this little insect are very destructive to our apple-trees; and in France its ravages are sometimes so extensive, that it has been regretted there that the old law, commanding the people "to uncatenpillar the trees, had been suffered to fall into disuse." (*Gardener's Magazine*, iii. 424, N. S.) Our drawing represents the moth magnified and of its natural size. The fore wings of this moth, ordinarily, are of a leaden white, with about thirty remote minute black spots, disposed somewhat regularly in longitudinal rows, but on the hinder margin they are more irregular, and tend to a transverse disposition: the hairy fringe of the wings is livid. Posterior wings lead-coloured; fringe rather paler. Extremely variable: some examples having the ground of the fore wings white; some with a livid or pale lead-coloured central cloud; others, again, entirely of a pale or deep lead colour; and intermediate shades occur: the number of spots also varies. The caterpillar is of an ashy white colour, with a brownish head, and a number of small black spots, of which the largest form a series on each side of the body. It has sixteen feet, the three front pairs being jointed, and attached to the three fore segments. The four following pairs are membranaceous, false, ventral legs. They are below the middle size, and the body is smooth. It prefers only some kinds of apples, which is the more remarkable, because its principal food (whence its specific name is derived) is the bird cherry (*Padus*), although the white thorn is also even more subject to its attacks; whole hedges being sometimes entirely defoliated in summer, and covered with webs. It is a peculiarity in the history of this insect, that it is not only social in the caterpillar state, but that it retains its sociality during the period of its pupation, the cocoons being formed within the web which had served for the abode of the caterpillars. These webs are quilted from time to time, and new

	MAY	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
17	Cloudy.	Fine.	Showery.	Showery.	Showery.	Rain.	Fine.	Fine.	
Highest & lowest temp.	68°—45°	68°—43°	52°—43°	56°—32°	57°—31°	61°—36°	66°—45°	70°—52°	
18	Fine.	Fine.	Showery.	Showery.	Showery.	Rain.	Fine.	Fine.	
	66°—46°	66°—40°	48°—42°	54°—41°	55°—42°	62°—46°	70°—45°	70°—39°	
19	Showery.	Showery.	Cloudy.	Fine.	Cloudy.	Stormy.	Fine.	Showery.	
	66°—47°	65°—36°	66°—46°	60°—43°	59°—38°	63°—49°	66°—46°	65°—44°	
20	Showery.	Cloudy.	Showery.	Cloudy.	Showery.	Showery.	Fine.	Cloudy.	
	61°—36°	68°—49°	62°—48°	63°—46°	61°—41°	66°—44°	67°—42°	66°—37°	
21	Cloudy.	Fine.	Showery.	Fine.	Fine.	Fine.	Fine.	Fine.	
	69°—54°	61°—41°	64°—36°	62°—46°	56°—42°	71°—39°	66°—45°	69°—54°	
22	Showery.	Cloudy.	Showery.	Fine.	Showery.	Fine.	Fine.	Fine.	
	66°—43°	65°—42°	56°—45°	67°—46°	59°—41°	71°—46°	77°—50°	73°—48°	
23	Fine.	Fine.	Showery.	Cloudy.	Rain.	Fine.	Fine.	Fine.	
	75°—46°	64°—43°	63°—52°	70°—43°	66°—44°	71°—47°	89°—59°	72°—38°	



encampments established at short distances from each other; hence, each brood constructs several webs in the course of its caterpillar state; the reason of which is, that the caterpillars do not quit their webs to feed, but only eat such leaves as are enclosed in each web. The number of inhabitants in a colony varies from one hundred to two hundred; and, hence, the more numerous the colony, the more frequent is a change of residence required. The caterpillars eat only the parenchyma of the upper side of the leaf; they also arrange their threads longitudinally, each, apparently, having a thread of its own, along which it moves either backwards or forwards without disturbing its neighbours, which, when in repose, are arranged side by side. For the destruction of these insects, various plans have been recommended. Mr. Major says that nothing more is required than the application of strong soapsuds forcibly applied with the engine, so as to break the web, that the suds may reach the insects. Where the trees are not much infested, gather the webs, including the cater-

pillars, by hand, and destroy them in any way most convenient. Care should, however, in these cases, be taken to kill, and not merely to disturb, the caterpillars. Mr. Lewis suggests the picking off and burning of the leaves whilst the caterpillars are in the mining state; the presence of the insects being indicated by the blighted outward appearance of the leaf; but prevention is always better than cure, and it seems to us easier, as well as more advantageous, to destroy the moths as soon as they are produced, and before they have had time to deposit their eggs. The generally simultaneous appearance of the entire brood in the winged state, together with the very conspicuous appearance of the moth, will render this a matter of great facility. A sheet may be laid beneath the branches in the daytime, which should then be sharply struck with a stick; when the moths, which at that time are sluggish, will fall into the sheet, and may easily be destroyed.

ANOTHER name must be entered in the long, mournfully long, roll of "the martyrs of science." Dr. GEORGE GARDNER, Superintendent of the Botanic Garden of Ceylon, has fallen a victim to his continued researches after the botanical riches of the tropics. "Death's coal black vine" came to his lips as it usually does, in those climates, to the sanguine and energetic; and he has died, unwarned, in the prime of manhood. He was a pupil of Sir W. Hooker, when the latter was Professor of Botany at Glasgow; and, almost fresh from the class room, he voyaged to South America in 1835, and devoted himself to the examination of its Flora. "The shores of Brazil," he relates, "were finally left on the 10th of June, 1841, and I arrived safely at Liverpool, with all my collections, on the 11th of July, having been absent five years and two months. It was a source of no little satisfaction to myself, as well as to those who participated in my collection of dried plants, amounting to about 7000 species, that they all arrived in the most perfect state." (*Hort. Society's Journal*, iii. 256.) Some of the results of his observations have been published in the form of "Contributions to a History of the Relation between Climate and Vegetation." But these were written during the necessarily unoccupied hours on ship-board, for his love of research, and his zeal for the increase of botanical knowledge, were not compatible with protracted studious employment at home. In 1844 he was appointed Superintendent of the Ceylon Garden; and he addressed himself to the duties of the office with his accustomed zeal. In the interval, he had published his "Travels in the Interior of Brazil;" and when he reached Ceylon he had abundant employment to sweep away from the garden the consequences of previous inattention, and then to examine its too-much neglected botanical riches. He published some essays on the subject, and was employed upon a larger work, for in one of his last published essays he said—"I am at present engaged in preparing a work which will contain descriptions of all the vegetable productions indigenous to Ceylon, illustrated with coloured figures of some of the more rare, beautiful, or useful species. This, however, will be a labour for several years to come"—

but those years were not permitted to him. He died at the beginning of the present year, of apoplexy, and before he had attained the age of thirty. We hope that his MSS., as well as the beautiful drawings of Ceylon plants, which we remember to have seen at Calcutta, from the pencils of General and Mrs. Walker, will yet be placed in competent hands, and made public.

WE have had so many inquiries relative to "The vinegar plant," that we think it best to answer our correspondents generally, by placing here the following letter from a successful cultivator of the plant, Mr. Reid, gardener to Mrs. Clarke, of Noblethorpe Park, near Barnsley:—"I am unable to give a scientific description of the substance known by the name of 'the vinegar plant,' but it is a fungus, whitish in colour, of semi-transparent, jelly-like appearance, and when full grown about the size of a dinner-plate; tough to handle, and about an inch in thickness. Although I never heard of, nor saw it until last year, yet I find it is very common in this part of Yorkshire amongst tradespeople, farmers, and cottagers, as by making use of it they are able to obtain a good useful vinegar, at the cost of about one penny per quart. The process is as follows:—Dissolve $\frac{1}{2}$ lb of moist sugar, or, for highly-coloured vinegar, $\frac{1}{2}$ lb of treacle, in three quarts of soft water. Put this mixture into a wide mouthed jar, and the vinegar plant with it; cover the mouth of the jar either with white paper pricked full of holes with a pin, or with a thin piece of gauze. Let it remain in a warm room or corner of the house for about five weeks, when the process will be completed, and the vinegar fit for use. During the process the plant, if it is a good sound one, will grow considerably both in diameter and thickness, floating on the surface of the liquor, and when taken out a young plant will be found adhering to the under surface of the old one. This young one will be nearly as large as the old one, but much thinner; and must be carefully separated from its parent, and set to work by itself in a separate jar. The old plant, also, may be safely set to work once or twice more, and will pro-

duce a young plant each time. Some people advise to add a spoonful of yeast to the mixture: we have tried it this way, but cannot perceive any advantage arising from it."

THE FRUIT-GARDEN.

VINES IN GREENHOUSES.—In THE COTTAGE GARDENER for April 26th, we promised to return, ere long, to the subject of vine-culture in the ordinary greenhouse; and, indeed, it is necessary such should be the case, for three or four weeks at this period form a most important item in the progress of a tree of such rapid development as the vine. It so happens, moreover, that nothing very pressing in outdoor fruit-culture is on hand; therefore, no sacrifice has to be made; and there can be little doubt that some of our amateur friends, who have but recently obtained the luxury of a nice little plant-house, will receive some useful practical hints from the discussion of this subject. At page 33, we adverted to the economy connected with the plants on the stage or pit, which we are supposing to exist in the vineries of those to whom we address ourselves, also to temperature both day and night, ventilation, &c., &c.; assuming that the vines were either about blossoming, or commencing the first swelling.

BLOOMING PERIOD.—We owe some apology for not going more into detail on this point in our last observations. Brevity now will best befit this portion of the subject, for, doubtless, most of our readers' vines have passed it. It may merely be remarked, that once an opinion was prevalent, that a particularly moist atmosphere was necessary to the due impregnation of the blossoms; this idea is now exploded. Mr. Paxton, of Chatsworth, was amongst the first to show that there was no real ground for the practice, which had been handed from one gardener to another, on the faith of some empirical practitioner in former days, who, perhaps, had been successful, in spite of the practice, through attending to other points of much greater import. Let it not be supposed, however, that we advocate a very dry atmosphere. Some amount of atmospheric moisture is absolutely essential, both to the health of the foliage, and in order, it would appear, to enable the flower to burst its calyx, or cup which holds the flower. In such cases, therefore, instead of charging the atmosphere with hot steam, it will amply suffice to sprinkle the walls and pathways twice or thrice a day.

Some kinds of grapes are what is termed "shy setters:" of such are the Muscat or Tokay section, the Black Damascus, &c. It is the best practice with these to use what is called "artificial impregnation." This is accomplished by taking a sheet of white paper daily, and collecting the pollen, or male dust, from the blossoming bunches of good setting kinds, such as the Black Hamburgh. A gentle flirt about noon of each day will shake down as much pollen as will be requisite; borrowing thus from each bunch in blossom. This fine dust, which will appear like sulphur scattered over the paper, must be applied in a dainty manner, with a camel's hair pencil, touching lightly the surface of the blossoms of the bunch to be operated upon. During this operation we advise that a lively heat of 75° be kept up; if 80° it will be none the worse. A lively circulation of air is also necessary. As the month of May will be far

advanced when this reaches the readers of THE COTTAGE GARDENER, no vines will be in blossom but those intended for very late use next winter. The best of all grapes for this purpose, beyond all doubt, is the true *West's St. Peter's*; and this is sometimes rather shy at "setting." The operation alluded to may, therefore, be performed on this kind occasionally.

As *pot-plants* of various kinds will be generally in the vinery, we strongly advise, as one of the main features of management, that the vines be at all times kept hardy; not starved with cold, but always inured to as free a ventilation as the weather will permit. This may startle some old practitioners, perhaps. We are persuaded, nevertheless, that there is no occasion for so much coddling of them as is frequently practised, *provided, only, that they are inured to a free ventilation from the moment they first break.* On this we take our stand; and those who persist in the practice, will soon find that a vine will bear a puff of wind even as well as other trees. Let it, however, be understood in connexion, that we do not mean low temperature: this is quite another affair. If air must be freely admitted in order to keep things robust, it is evident that a certain amount of artificial heat must be provided. These observations we conceive to be particularly necessary to the amateur, who, under such a mixed system, will have his geraniums, ericas, calceolarias, cinerarias, &c., besides a host of mick-nacks, some of them approaching the character of what we term "stove plants," under the same roof. Now, all these things we know cannot be grown so robust as when treated singly. It is past the art of man to do so, provided, in the latter case, they are handled by men of sound experience. Nevertheless, we hope, in the course of our greenhouse papers, so to systematise, yet simplify, matters, that a very high point of culture may be obtained, both with the grapes and the plants; a point which shall satisfy the most fastidious.

SWELLING OF THE BERRY.—The grapes having been duly thinned out, the next point is to see that, during the period of their first swelling, the atmosphere of the greenhouse is well attended to. In the first place, a day temperature of 65° must be secured during all fair weather. If, nevertheless, very bad weather occurs, wet and windy, it will be quite as well to give up a few degrees, and, in point of fact, to descend to the minimum pitch, or, in other words, mere night heat, that is to say, 60°. This will be found, under such circumstances, a benefit more than otherwise; for, as before observed, heat of an exciting character, without a proportionate amount of light, is productive of injury rather than otherwise. This course, also, will prevent the plants "drawing," and thus suit all matters. The greatest stress, nevertheless, should be placed on a free circulation of air at every fitting opportunity—night as well as day—provided the necessary warmth can be maintained. Before leaving this division of the subject, we beg to be pardoned a repetition we deem necessary. At page 34, we advised a *very early morning ventilation*; we beg to repeat it, as a point of paramount importance; indeed, this is one of the reasons why sound practical gardeners have, of late, so much advocated the practice. We feel persuaded that many of the so-called diseases, rust, scab, &c., &c., have been, in the main, injuries to the cuticle or skin of the young grape, than which nothing can be more tender, and which is exceedingly impatient of a hot, moist and stagnant atmosphere.

INSECTS.—The red spider is most to be dreaded of

all these depredators, and the best recipe for it is sulphur; at least we can only say that we have not seen a red spider on the vines under our charge for the last half score years, or, indeed, much longer. We may, therefore, detail at once our mode of application. The vineries here (Oulton Park) are heated by hot-water piping, and we make a point of using these as the principal agents in destroying, or rather preventing, the red spider. About four dressings in the year secure to us a perfect immunity from this pest, not only on the vines but the plants, for we are crowded to suffocation with stove and miscellaneous plants, kidney-beans, pines, and a host of other things, beneath the vines at all times. This is no choice-work, it is a case of necessity. The houses alluded to being 30 feet in length, by about 16 in width, and about 12 feet high at back, we use about six ounces at least of flowers of sulphur in each house: this we have found by many years' experience to be sufficient. The mode of application is very simple: the sulphur is put in a bowl, and is applied by means of a painter's "dusting brush;" one man with a syringe goes a-head of the sulphur man and syringes the pipes, keeping them constantly wet; the sulphur is then applied by merely dipping the brush into the bowl; enough adheres to the dampness of the brush to form a regular coating or paint. We must here observe that we only apply it to the *return pipe*: the advance or "flow" pipe we fear, as it is so much hotter; the bottom pipe we plaster thickly from end to end, and no mischief has ever occurred through some scores of operations. This we have ever found effectual, and, if followed up, there will be small occasion for daubing the leaves of the vines with mixtures; this plan is to be avoided by all possible means, for grapes without a bloom upon them appear mauled, and can never be relished like those which look a perfect picture on a dish.

SYRINGING.—Many persons deem it indispensable to syringe vines occasionally; *we do not*. Syringing is of some service whilst the vines are what is termed breaking, that is, when the buds are bursting open; it facilitates the bursting of the buds, and promotes size in the leaf, which latter circumstance is closely connected with size in the berry of this year, and the bunch of the succeeding year. But to continue to syringe vines after the berries are set, or, indeed, whilst they are setting, is certainly a most erroneous mode of procedure. In the first place the vine has such a copious elaboration to perform (which depends much, of course, on the perspiratory organs), that comparative dryness in the atmosphere is needed at most times. It is almost needless to add that this perspiration cannot take place so freely whilst the leaf is wet, or the atmosphere surcharged with vapour, as under a drier air, and, of course, a more free motion of this needful element. A study, indeed, of the character of the climates where the vine grows indigenous in the highest perfection, will soon convince any one of the error of keeping the vine leaf frequently wetted.

There is another view of the case, and that is the beauty of the berry, which is dependent not only on its size but on its colour, and that delightful bloom, as it is called, which adds so much to the beauty of this noble fruit. A well-coloured black Hamburgh grape, with a fine bloom, is a rival to the most chastely tinted plum; which is, indeed, no small recommendation, for who does not admire the bloom of a fine purple plum? We would not, therefore, syringe a vine at all after blossoming commences, and not too much before that period. What is called

"breaking well," is in the main dependent on more powerful agencies than syringing, viz., a powerful root action, together with slow breaking after well ripened wood of the preceding year has been thoroughly rested: these are the grand principles on which the eye must be fixed; this the goal at which we must aim at arriving. These things secured, and a liberal ventilation pursued, all other matters about which so much fuss has been made may be fairly written down as subordinate. There are those, however, who fancy they cannot subdue the red spider without syringing freely; we confess that half-a-score years ago such was our opinion. As before observed, since we adopted systematically the sulphur plan, which we have detailed, we have scarcely ever known a red spider to set foot in our houses, and the syringing has of course fallen into disuse.

FUMIGATION must be had recourse to occasionally, and this will suit the plants as well as the vines, provided it is done gently; our plan is to fumigate gently three days, or rather evenings, in succession. Some plants are very impatient of heavy fumigation: of such are the fuchsia family, the heliotropes, and the mignonette; and the best practice is to remove them while the operation is proceeding.

During the first swelling of the grapes the plants on the stage ought to be kept very thin, for it is well to keep a somewhat closer atmosphere during this part of the process than we shall advise afterwards. An old frame or pit, therefore, might receive the weedings out of stock, and such as the harder ericas, and plants in general, if not blooming; inferior or late geraniums, together with much young stock for succession, also may be placed here on ashes, and protected by double mats at night in severe weather.

R. ERRINGTON.

THE FLOWER-GARDEN.

CLIMBING AND PILLAR ROSES.—In addition to the lists and description of roses suitable for bedding in groups in beds, our fair correspondents desired a list of climbing and pillar roses. Desirous always to comply with the wishes, and give every information within our power to all classes of our readers, we shall this week give a select list of really good roses for the purpose of covering unsightly walls, or the house of the amateur as well as of the more humble cottager. These roses are also very suitable to plant either against the arched, trellis-covered walk, or against pillars set up purposely to train them to, and show their lovely blossoms to the greatest advantage. We shall place them before our readers in their several classes or sections, so that the cultivator may choose such as will suit their situation and taste.

CLIMBING ROSES.—*Boursault*. This is quite a distinct section, very gorgeous, of rapid, vigorous growth, blooming in large clusters. To prune them rightly, thin out the branches severely, but do not shorten much those you leave.

Anadis, or *Crimson*.—Deep purplish crimson, large and semi-double, cup-shaped flowers. *Blush*, or *De L'Étoile*.—Blush, rose centre, very large and full, globular. *Élegans*.—Crimson-purple, streaked with white, showy, globular shape.

AYRSHIRE ROSES.—These may be properly termed "running roses," being of a free and rapid growth, will thrive in rough wild situations, such as rocky banks, or to climb up old or dead trees. For these purposes there are none to equal the Ayrshire varie-

ties. They also form beautiful drooping objects, if budded upon tall standard wild briers.

Arschire Queen—Dark purple-crimson, large and semi-double, cup-shaped. *Queen of the Belgians*—Creamy white, small and double, cup-shaped. *Rosa*—Pale flesh, large and double, globular.

EVERGREEN ROSES.—These are a valuable section, blooming in very large clusters of from ten to fifty flowers in each. They retain their fine shining foliage the most of winter, are free growers and very hardy. Like the preceding, they form beautiful weeping heads if on tall standards. Prune them so as to leave the largest previous year's shoots, which will flower in the extreme ends.

Felicite perpetuelle—Creamy white, small and double, of a compact form. *Madame Plantier*—Beautiful rose, double and cup shaped. *Myrianthes*—Blush, edged with rose, small and double, cup shaped. *Speculabile*—Rosy lilac, large, double and of compact shape.

BANKSIAN ROSES.—Like the last, nearly evergreen, requiring a warm wall and dry border. They should be trained with long shoots, to bloom on the short branches these shoots make, and will then flower very freely and beautifully. The older they are the more flowers they will produce. Any long strong extra shoots they may produce, that are not wanted, should be cut away towards the end of June.

Banksia Alba—White, very sweet, in clusters of small elegant flowers, cup-shaped. *Banksia Jaune Serin*—Yellow, equally fine as the last, with large flowers, and cup-shaped. *Banksia lutea*—The old yellow, very small and double, and cup-shaped. *Banksia Odoratissima*—Pure white, extra sweet, small, double, and cup-shaped.

HYBRID CLIMBING ROSES.—These, on account of their decided climbing habit, are separated from their proper section. The two first are varieties of *Rosa multiflora* hybridized with other kinds. The last named is a variety of the *Musk rose*. They require pruning the same way as the Boursaults.

Laura Davoust—A most desirable rose, pink, changing to blush, and very double, of a compact shape. *Russelliana*—Strong grower, dark crimson, and double, of a compact form. *Madame D'Arblay*—White, blooming in large clusters, very showy.

ROSA MULTIFLORA. (*Many-flowered rose*.)—The varieties of *Rosa multiflora* are rather tender, requiring a warm sheltered situation, and a very gentle use of the knife in pruning. "The seven sisters" is a splendid variety when it has proper treatment.

Grevillei (Seven Sisters)—Blush, changing sometimes to a deep red, double, and compact form. *Elegans*—Blush and white, small, double, and of a compact shape. *Triomphe de Bayeux*—White, centred, straw-coloured flowers, in corymbs, or flat heads, of bloom.

All the above are truly climbing roses. If the garden is small, select one only out of each section. There are a large number of hybrid China summer-blooming climbers; for autumn-blooming, hybrids of Bourbon, Noisette, and Perpetuals, are proper; a list of which, as pillar roses, will appear shortly.

INSECTS.—In the last number the destruction of the red spider was treated of. The next species of insect most destructive to the inhabitants of the flower garden is the *Aphis*, or plant louse, usually called the green fly. Like the red spider, this insect feeds by suction on the juices of the plants it infests. It breeds prodigiously fast, so that if you perceive but a few one day, in a very short time, if not checked, your roses, calceolarias, verbenas, &c., will be covered with them; and, by sucking out the sap from the youngest leaves, causing them to contract into deformed shapes, turning them yellow, and eventually destroying them. This destruction is even more rapid than that by the red spider. Happily the green fly is more easily destroyed than the red spider, especially if the means to do so are resorted to in time. For insects of this kind in pits, frames, or plants under hand-glasses, there is nothing so effective and

less troublesome to apply than tobacco smoke. Some of our correspondents write that they find this remedy too powerful, but if it is judiciously applied no harm will ensue. When you intend to fumigate your plants choose a still evening, and let your plants be quite dry. Place them closer together, and in the clear space thus obtained put either an iron pan, or, if you have not such a thing, use a hard-burnt garden pot; put in it a few red hot cinders that do not smoke, upon those cinders put your tobacco, or tobacco paper, rather damp. A cloud of smoke will immediately rise, and will soon fill the frame. As soon as you judge it to be well filled with smoke, remove the pan, or pot, and carry it to the next frame, if you have more than one that requires smoking. Be extremely careful that the tobacco does not break out into a flame, as it is that which does the mischief. If you perceive a likelihood of blazing out, prevent it with a sprinkling of water, very gently applied. Cover up the frames with mats to keep in the smoke as long as possible. The next morning examine the aphides, or green flies, and if you find any alive repeat the smoking the following evening. This second application will most effectually destroy all your enemies. There will be none left alive to tell the dreadful tale to the next generation. You may now syringe the plants pretty severely, to wash away the dead bodies of the slain, and the plants will again thrive and flourish in perfect health and beauty.

The green fly on plants out of doors, so situated that the smoke of tobacco cannot be so perfectly confined as to destroy them, require a different mode of attack, though the same herb furnishes us with a remedy against the foe, only it must be applied in a different form; that is, as tobacco water. This can be had at any tobacco manufactory, or it may be made by steeping 4oz. of tobacco in a gallon of water; let it stand in the water for a week or so, occasionally stirring it with the hand, and squeezing the tobacco to bring out the strength. It will then be very powerful, and perhaps will bear an addition of water, previously to using, to the extent of one half. Apply it to standard roses by dipping the infested branches in it during a dry evening, and syringing them the next morning. For roses on pillars, or against walls, use the syringe filled with clear liquor, and applied gently all over the shrubs. Verbenas and calceolarias in beds are often during the summer months much injured, and their beauty deteriorated, by these insects; also roses in beds suffer much from the same cause. We know no better remedy than the above mentioned tobacco water, applied with a syringe or fine-rosed water-pot. These operations may be troublesome, but who will grudge the trouble and slight expense to rid his flowers of those injurious and beauty-marring parasites. Other kinds of insects must claim our attention in a future number.

PLANTING.—Now the warm weather of spring has fairly set in, you must begin to plant out the stores of things that you have been preparing so long to make the flower garden gay and beautiful. Fuchsias, Scarlet Geraniums, Verbenas, Petunias, Dahlias, Roses in pots, half hardy annuals, and a host of other things described at page 33, vol. ii. Loosen the soil in the beds with a three-pronged fork, breaking and levelling it so as to put it in a good condition to receive the plants. Choose, if possible, fine dry days for this operation. Set the plants in their places all over the bed. Such as are of a trailing nature should be allowed room enough to spread; others may be planted thicker on the ground. When you have set the plants in order, commence planting in the centre of

the bed; stick a spade deep and firmly into a convenient place, then remove the centre plant; make a hole, sufficiently deep to receive the plant, with a trowel; lay your trowel down and take up the plant; turn it upside down, and give it a gentle tap upon the handle of the spade; catch the plant with one hand, and with the other put away the pot, either into the walk or on the grass near the bed; then put the plant in the hole, filling in the soil close round the ball. Avoid deep planting above all things. Proceed with the next plant in the same manner until the bed is quite filled, levelling the soil neatly as you go on; then finish by a gentle watering, and no more care will be required until the plants begin to grow and spread. In mixed flower borders, plant out in the most open places, the tallest growers behind, and the dwarf ones in front. Leave room, however, for more tender plants to be put out hereafter.

FLORISTS' FLOWERS.

AUCULAS AND POLYANTHUSES.—Those that have done flowering may now be placed in a situation exposed only to the morning sun till about ten o'clock. Set them on a coating of coarse coal ashes to prevent worms from getting into the pots. Do not place them either under the drip of trees or near a hedge; the drip is very injurious. Remove offsets, and plant them in small pots; if you could place them under hand-glasses for a short time, it would do them good and encourage them to grow.

SEED.—If you are desirous of saving seeds from those plants, protect such good varieties as are likely to breed well from heavy rains, as too much wet is apt to rot the seed vessels.

RANUNCULUSES.—To secure a good bloom attention must be given to keep the plants in a healthy growing condition; stir the soil between the rows gently with a small stick, being careful not to injure the roots; then give an abundant supply of water, as those plants love it much. See that there are no insects on the under side of the leaves, they being cunning enough to secrete in such places; destroy them by all means, or they will soon destroy your plants. T. APPLEBY.

GREENHOUSE AND WINDOW GARDENING.

WINDOW GERANIUMS will either now be in bloom or nearly so, and those to succeed them will probably be showing flower-buds. In either case, alternate waterings with weak liquid manure will be of great benefit to them. It will be recollected that we have already observed that those who know the nature of the geranium never give it strong water till the flower-buds are seen, because any encouragement that way during their first growth would only tend to long shoots; or, as gardeners significantly say, "long legs." *Fuchsias* also should begin to bloom by this time, and they take abundance of water all the time they are in flower, and liquid manure once a week.

LIQUID MANURE.—As it is often very difficult to know the exact strength of liquid manure, the following rule is the only guide that can safely be relied on; a pound or a handful of this or that substance to a given quantity of water will answer very well for practical people well versed in these things, but

for those who know nothing on the subject such rules might kill all their plants; as, for instance, one pound of guano from one sample may be as strong as two pounds from another sample of it. The ammoniaical liquor from the gas works is an excellent manure for most plants; so likewise is soot and water, if left till the black shine settles to the bottom. All sorts of common manure, if steeped in water, will make excellent liquid manure, and the whole of them may be used with the greatest confidence, if the following simple rule be attended to:—On a hot sunny day take a sample from your liquid manure cask, and pour a little of it over the tops of nettles, or any soft weedy plant you care nothing about. If the leaves curl up a little, your liquid manure is just the proper strength for all fancy pot plants. If the nettle leaves turn quite black, and seem scorched, your liquid is too strong, and you must add more water to it to reduce it. It is quite true many plants will bear it four times stronger than others, but it is so difficult to guard against accidents, that some absolute rule seems necessary, and the above is the safest that has hitherto been tried, and if the leaves are not at all affected by the application under a strong sun, the liquid will not add much strength to the plant. Now, it is quite safe to use liquid manure thus tested for every alternate watering through the summer, and the more kinds of ingredients are used for making the liquid the more effectual it seems to be. We have one large tank here (Shrubland Park), into which the various sewage drains from the mansion discharge their contents after sundry filterings. We can draw large quantities from this tank perfectly clear, and it kills all the green fly on the roses and other shrubs, all through the garden, by applying it two or three times in succession with a garden engine; and, to guard against accidents, I never allow it to be used until it is first proved as to its strength, and I find it of immense advantage. For geraniums in a window I never found a better thing than the daily supply from my wash-hand basin, and one can give that three times a day if they were needful, without doing them harm, but the contrary.

SCARLET GERANIUMS.—I have often said you cannot have too many of these. Specimen plants of them are often injured by want of proper attention about this time, especially such as have been kept dry all the winter; for, when their energies are in action after a long rest, they are sure to make twice as many shoots as can find room, though you may train them out as far as they will go. Those who are well up to the way of managing these useful plants, rub off all the smaller shoots as fast as they are produced, no matter in what part of the plant they may appear. The grand secret is to produce three, five, or seven shoots, of exactly the same strength. Now, if you look at that scarlet geranium in the window—I mean the one with the three shoots—you will find the reverse of this, the three shoots being in three different degrees of strength, and all of them are just showing flower-buds, one at the top of each, curled up among the leaves. These flowers will appear, if left to themselves, as good, bad, and indifferent; and a gardener passing by, if even on a railway, will notice how badly the plant has been treated, and what a pity it is that some one did not tell the owner of this plant either how to manage it better or advise him to read *THE COTTAGE GARDENER*, where he would be sure to find something about it, by looking first at the index; and if he did not find the name of all the plants he wished to read about in the index, why, if he is in a particular hurry, he will write a letter to the editor,

stating in plain words, and still plainer writing, what is amiss with his plants, or whatever he may want to know, and an answer for him will be as studiously considered as if he were the Duke of Wellington himself; for all correspondents are on an equal footing in these pages, and in all other papers which aim at being useful; therefore there is no reason why any one in this fine country should stick up a gawky or unequal-sided geranium in his window, like the one we are now considering.

It is now too late in the season to rectify the error of unequal-sized shoots by stopping them, as, if they were to have only the least bit of the top broke off, the flower-buds will be destroyed, and no more flower-buds will appear till new shoots are formed to produce them. In that case, the flower-buds on the two weaker branches had better be sacrificed, for, if they are left, they will not be very creditable, and by removing them the shoots will grow on and get stronger. By the time the flower-buds on the top of the strong shoot are well up above the foliage, and the shoot itself is grown a joint or two beyond where the footstalk of the flower head issued from, this shoot is to be stopped, in order to throw the whole strength of the plant into the flowers. This is always a wise measure for many plants, particularly the scarlet geranium; but, besides this, I have a particular object in view. By stopping the strongest shoot, and allowing the two inferior ones to proceed without flowering, they will soon be able to overtake their rival, which, having been stopped, will now be pushing up two or three shoots in place of one. Two of the best placed, however, should only be allowed to grow; and now we have four shoots that will be very nearly of equal strength, each of which will be allowed to produce a truss of bloom late in summer; and as soon as each truss or flower-head is well up above the leaves the shoot is to be stopped, more particularly if the sort be one of the very strong varieties—such as the *Shrubland Scarlet*, the best of this class; *Tam O'Shanter* or *Goliath*, two very nearly allied to the *Shrubland Scarlet*, and might pass for it in a crowd. For the dwarf and small growing scarlets, stopping the shoots before the trusses is not necessary; but let us follow the large sorts to the end of the season. If they are in very good health, our example plant will be in bloom full six weeks. The four shoots must not be allowed to form side branches, although they may make vigorous attempts to break out into new shoots where they have been stopped. By the time the last of the four trusses begins to fade, the plant has done its work for that season.

Now, recollect this is perfectly indispensable for carrying out a new system of growing these large trussed scarlets, which I shall often have to allude to as *something much out of the common way*. Young plants—that is, two-year old plants—are only to be allowed to produce one set of bloom in a season, like a common window geranium, although, if allowed, they would go on flowering to the end of the season. All the dwarf sorts may go on flowering as long as they will; but, beside these, I should much wish to hear of a couple of these large scarlets attempted on this new plan by every reader of *THE COTTAGE GARDENER*. Some readers no doubt will smile at this, and so would I some years back, but the age for pooh-poohing is gone past; and when a meritorious object like this is to be attained, it is much better to put our shoulders to the wheel, and place the vehicle of improvement on the broad railway gauge, than arrest its progress by laughing its friends out of

countenance. As a further inducement, I may mention that some of the first gardeners in the country are just beginning to adopt this new system of growing these large scarlet geraniums for furnishing large conservatories, living-rooms, staircases, and the like, for the highest nobility in the land, and D. Beaton among the rest. No wonder, therefore, that he would thus early take the bull by the horns; not to let him into a china-shop, however, but to place him quietly on the window-sill. This, like many other improvements in plant-growing, is fully as much adapted to the cottage as to the palace gardener. The grand foundation of the system is, that the plants are not allowed to bloom but once in a season; that the shoots are all to be reared of equal strength, or as near to that as art can do it; that no small side shoots be allowed to interfere with the growth of the principal flowering shoots; that these be stopped one joint before the flower stem; and that as soon as the plants are done flowering they should be turned out of doors to ripen their growth in some warm sheltered place. Here the plants are to be liberally watered, but no fresh growth allowed; every little shoot is to be rubbed off as soon as perceived: the bottoms of the flowering shoots will turn to a glossy brown by-and-by, indicating a degree of ripeness favourable to the next year's crop of flowers. Any time between the middle of August and the end of September these shoots are to be cut down close—say to within two joints of the older wood—or, if any of them be weaker than the rest, it must be cut to one joint. For a week or ten days before cutting the plants, like all other geraniums, they ought to receive but very little water; this will prevent their "bleeding," as we say when the sap of a plant drops or oozes out from the cut. A few days after cutting, the wounds will have dried sufficiently to stop this bleeding, and then the plants may be watered, to set them growing again; and by the time the fresh shoots are an inch or two long, you must look them all over to thin out the supernumerary ones. A great deal of the success of the system depends on this part of the business being done properly. If any of the shoots before they were cut down were much stronger than the rest, you may allow them to bear three new ones for next season; and see that you make choice of those best situated to form a regular head for the plant. Then the next-sized shoots may have two left on, and the weaker ones, if any, must be trained with one shoot only. The probability is, therefore, that the whole will come up of very nearly the same length and strength next season, blooming at the same time; and if they do, and every thing has gone on in the right way to that time, depend upon it our gracious Queen will not have a better specimen of good gardening for the whole season. Talk of growing pine-apples as big as turnips, and grapes as large as plums, why that is nothing compared to a *Shrubland scarlet geranium*, with nine, ten, or a dozen of its immense trusses of bloom of the size that I anticipate!

And now we may as well finish about the right compost, the watering and wintering, and also the spring cultivation, so as to make the whole system complete in itself. These large kinds partake much of the character of succulent plants—such as, for instance, cactus, aloes, and suchlike things—and these not only require particularly good drainage, but a good deal of small charcoal or old lime rubbish, like that used for the mignonette, to be mixed with the compost, in order to keep it open and porous

equally throughout, and also to arrest or correct any sourness that may take place in the rotten dung that will be used in the compost. I must also state that it is not safe for amateurs of no great experience to use moss over the drainage, as I often recommend for other plants, because in winter the moss will hold the moisture too long for their very succulent roots, although they will require but very little water all winter, and they must not be put up for drying like ordinary scarlets. The whole process all the year round will be much after the model of growing the best fancy geraniums; therefore, it is not advisable to cut them down early in the autumn, for fear of the new shoots growing too long before the winter; let us say the middle of September, and the young growth regulated as above by the second week in October, then they are ready for potting. It will save room, and answer your purpose just as well, to look in the first vol., page 150, and see how Aunt Harriet potted her geraniums, and also how she used to winter them. The same plan will do for these plants, only, if you have a dry cold pit, they would be better there, plunged in dry coal ashes, and near to the glass, than in the best window or greenhouse; and with that treatment, three times would be enough to water them from the end of October to the middle of February. When they are to be watered, take them out as I mentioned the other day for heaths. If you have many of them, or even half a dozen, a couple of them might be taken to a warm room in February, in order to get them into bloom early; and when they begin to grow freely, they must be potted at once in the pots they are to flower in. Use the very best loam you can find, and add one-third very rotten dung in a dry powdery state, with a good handful of the old lime mortar; and, at this spring potting, put a good layer of moss over the drainage. Water with plain lukewarm water till the flower-buds appear and the shoots are stopped, and then with weak liquid manure as often as they require water, until the blooming season is half over. Let us then hear how you have succeeded, and how you approve of this new plan. Six weeks after the first two were set in motion, take in another lot, and put them through the same process. After that the remaining ones may be left in the pit to come on of their own accord, but never attempt to pot them till you see they are in active growth. I think, if I have made all this clear enough to be well understood, it will give a great impulse to this branch of gardening; and I am not aware that a syllable has been hitherto published on the subject, but if I shall hear or read of any improvement on the plan, I shall not fail to mention it.

D. BRATON.

THE KITCHEN-GARDEN.

BROCCOLI.—Prick out the young plants as soon as they can be handled, or else hoe and thin them out in the seed bed, so that, either way, good sturdy plants may be secured for planting out permanently by the time that the pea ground and other summer crops are cleared away. The same practice is necessary also with regard to *borecoles* and *coleworts*, all of which will be greatly benefitted by timely thinning and pricking out.

CAULIFLOWERS.—Continue to sow small quantities of seed either in seed beds or in drills, where, after being duly thinned, they are to remain for a standing crop. It will be found an advantage, during the en-

suing summer months, to sow or plant in partially shaded situations, liberally supplying those well established with liquid manure, to which a moderate quantity of soot and salt should be added.

CELERY PLANTS should also now be pricked out upon well pulverized soil, but taking great care at the time not to prick too deeply into the soil, but to keep the collar and seed leaf of the plant above the surface. Strict attention is necessary upon this point, lest the celery should be heart-smothered, an accident to which it is particularly liable. Surface stirring, and the application of a little weak tepid liquid manure, will be found very greatly to encourage the growth of celery. A few of the early prepared plants may now be put out for early autumn use, but it is not advisable to take more than will be absolutely needed, or to plant to any extent this month, on account of the tendency which celery has to start, and become pipey, previously to being blanched.

CURLED ENDIVE AND LETTUCE should now be sown in succession; the latter, as previously directed, thinly sown in drills, to be thinned for standing, which, for summer purposes, is by far the best plan.

ROUTINE WORK.—Sow, in succession, *beans*, *peas*, *kidney beans*, and *runners*; and duly thin the small sown shoots from the crowns of *sea-kale*, leaving only the strongest, the growth of which must be encouraged by the application of liquid manure, with some salt dissolved in it. *Jerusalem artichokes* must have the earth well stirred about them as soon as they appear above ground. *Potatoes* new above ground should be kept well hoed and surface-stirred; and those that have been cut down by the frost and are putting forth many shoots, should have the weakest of these hoed out, leaving only one or two of the strongest to each plant. One or two shoots, according to their strength, is our maxim; for if many weak ones are allowed to remain, nothing but a mass of small tubers will be produced. Although disease is still to be discovered about the shoots of the potatoes, yet it is at present very limited in extent to what it has been in former years at the same season.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 28.)

THERE is something in the very name of May that is delightful to English feelings. Although it is not now so soft and warm a month as it used to be in our childish days, yet we always expect it with anxiety, and welcome it gladly, for it seems to us to be the very time so beautifully described by the royal penman: "For lo, the winter is past, the rain is over and gone, the flowers appear on the earth, the time of the singing of birds is come, and the voice of the turtle is heard in our land." We have, it is true, much cold and wet in the Mays of late years; but let any one take a woodland walk on a bright and genial morning, and see if Solomon's exquisite description does not suit even our northern climate well. Gardens, and fields, and woods, and wilds, are all alike bursting into summer beauty. The hedges in every lane are covered with woodbine and wild roses; the very bramble sprays are beautiful as they droop over the path, with their delicate

green sprigs; and the many wild creepers that cling to the trees and bushes give grace and richness too. It is surprising that so many who possess fine gardens, and parks full of rich and varied beauty, should, just at this season, choose the heated rooms and smoky air of London, when the country is so full of interest and loveliness, when God's own works are so fresh and fair, and when all nature appears more especially to show forth His bounty and goodness to the children of men. How much of real, rational, and spiritual enjoyment is thus lost to the rich and noble, which the country resident and cottage gardener so fully possess, and *ought* so diligently to use and profit by.

That lovely flower, the auricle, is now in full bloom and beauty. It is an interesting plant to our minds, because it is so generally admired and cultivated by that interesting class of cottage gardeners—the inhabitants of manufacturing towns—whose long dull days of labour, far from sweet scenes and cheerful sights, are cheered by their window flowers; and the beauty and perfection of their different kinds, I am told, is very great. Our heavenly Father blesses honest, lawful labour of every kind; and to sweeten and lighten that which is peculiarly dreary, yet so very necessary to meet the wants of man, he bestows a taste which, more than any other, tends to refresh and soften, and civilize, the mind of the artisan, by bringing into his dwelling the beautiful objects of nature, and showing him, even in his close, confined apartment, some of the wonders of the soil.

The auricle was long known by the name of the mountain crowslip. It braves the high and snowy parts of Switzerland, Germany, and Italy, and yet blooms wildly in the warm soil of Persia. How astonishing it is that the burning sun of the east, and the freezing gales of the west, should be alike favourable to this little downy flower! Masses of its rich and many-coloured blossoms look beautiful, even as a common garden plant; and, if a little attended to, are really very fine in size, and tolerably powdered with their peculiar meal. I love to see them in large patches, so that I may gather a bunch with comfort to enjoy their very agreeable scent, and they make the garden very gay.

A very lovely creeping annual, extremely suitable for the trellis or porch, is the canary creeper. It is a very light, elegant plant; its feathery blossoms so strongly resemble in colour the bird from which it takes its name, that we almost fancy we see them perched among the leaves. The seeds may be sown now; and, if in a sunny, sheltered spot, it will soon climb and beautify the bower. I very seldom see it, which surprises me, for it is an elegant plant, both in growth and blossom, and forms a pleasing variety among the summer foliage. If scarlet runners were planted near it, the mixture of colours would be very rich; and, although a common plant, the effect of the scarlet runner is very good, even when placed alone. A bowery walk, formed of tall thin rods fixed opposite each other, and bent into arches, when covered with scarlet runners, has a very pretty effect in a cottage garden; and a few seeds of the canary creeper, placed here and there, would add much to its beauty. The convolvulus major, too, should not be overlooked. How rich and gay might the simple garden thus be made! or, even without these arches, the appearance of the little homestead would be improved if these light climbers were wreathed round the standard fruit-trees, and even allowed to cling to those against the wall—for their branches and tendrils are so tender that they could not in any way

injure or shade the fruit. What a lovely scene is an English hamlet, with its bowery hedges, neat wickets, and glowing gardens—its straw covered roofs and glittering orchards, all clustering round the quiet solemn tower, that tells so truly the grand secret of England's peace. Is there, on the far-famed continent, among the fine scenery our countrymen run so eagerly to see, anything so beautiful as this? Let the cottage gardener rejoice in his hard-earned wages. The time is now, indeed, one of unexampled pressure and distress; the rich and the poor are tried and troubled, for the burden on agriculture is heavy to bear; still, let the labourer "look up to the hills from whence cometh our help." Let him remember the bondage of Egypt, and who it was that could alone deliver the Israelites from their calamities; and let the British herdsman rejoice in the blessings of *freedom and peace*, when all looks dark and threatening, believing that "in quietness and in confidence shall be our strength," for the Word of God has declared it. The lilies that bloom at our feet, the ravens that soar above our heads, the very sparrows that take away our cherries and peas, teach us important scriptural truths, and bid us wait on the Lord to be clothed and fed.

Whatever helps to endear our village homes, to encourage diligence, and to increase lawful profit, is doing a service to our queen and country, as well as fulfilling a part of our duty to man; and the love of gardening is as useful, as harmless, and as home-endearing a taste as the English labourer can pursue. Let him actively employ every prudent means, but always remember from whom alone the increase comes.

TO CORRESPONDENTS.

MOVING CHRYSANTHEMUMS (H. B. Wells).—You have a hedge of chrysanthemums, which has stood undisturbed for three years, and you now wish to improve their health and appearance, and to remove them to another place. You propose placing them in large pots, in an arched building you possess, having light and air if required.—There is no necessity of potting and placing them in such a building at all; take them up carefully, reducing the plants into moderate compactness as to size, and renewing the soil, making it rich with rotten manure—the chrysanthemum being a gross feeder. Plant them again immediately and give plenty of water. They will soon recover the shifting, and long before the flowering season will be strong and healthy, and will flower abundantly.

PLANTING A FLOWER-GARDEN (R. M. R.).—To lay out or form your plot of ground into an ornamental and agreeable pleasure-ground, we would advise a shrubbery at the further end from the entrance; beds of flowers on the grass; and a winding walk at a short distance from the walls. These we would cover with creepers, such as roses, honeysuckles, jasmynes, pyrus japonica, Wistaria sinensis, &c. You might form some rising ground here and there, so as to have an undulating surface. Your idea of a bed of rhododendrons in one corner and of heaths in the other is good. A mound of rock-work in the centre between them, but kept in a recess, as it were, would be interesting and in good taste. If you will send your address to Mr. Appleby, he will write you by post on the subject more fully. See the plan by Mr. A., at page 397, vol. i.; you might lay out your garden in something like that style.

EVEGREENS FOR A BRIGHTON BALCONY (W. X.).—The ever-green shrubs suitable for such an exposed locality are very limited, though your balcony be of "a good size." We can name none but the spruce fir, juniper, cypress, alaternus, box, and phillyrea.

UNFAITHFUL PEAR-TREE (T. A. Lockwood).—Your tree, 40 years old, blooms profusely every year, but makes little new wood, and only once during the time has had even an average crop; just when the fruit is formed it nearly all falls off. You have "lopt it," you have cleaned the bark, and you have given it liquid manure, "but all is of no use."—We think there can be little doubt that your pear-tree has descended into a sterile or ungenial subsoil. Were it ours we would bore beneath it next November, and cut away every deep root, without disturbing the surface roots. As a preliminary step, however, let the loose surface soil be scraped off directly, and top-dress nine inches deep with old manure and rotten turfy material, thus coaxing a series of new fibres to the surface, preparatory to the loss of the tap roots next autumn. In addition we would apply both knife and bill-hook next autumn, thinning out all interior branches.

PLUMBAGO LARFENTA (A Somersetshire Curate).—You have kept your plant in a sunny window, open on warm days, without a fire in the room, and you complain that the leaves have become "reddish bronze," and that the growth has been almost imperceptible.—You ask our advice, but we cannot give it confidently. It is a plant of

which very little is known as yet as to its capabilities. When Messrs. Knight and Perry sent it out it was stated to be a suitable bedding-out plant; this is now rather doubtful, and the state of your plant partly proves it. You must not give it much water, nor expose it to draughts of cold air; as it grows larger report it in light rich sandy earth. We cannot advise you to plant it out, as we much fear it is not yet known whether it will breathe open air.

ZACUSSEYIA CALIFORNICA (*Hook.*).—This, you say, is doing well, and has thrown out several shoots, already more than an inch long.—It is a perfectly hardy, having stood the winter in the Horticultural Society's garden at Chiswick. If you wish to propagate it take off the cuttings with a sharp knife, and plant them in sand, either in a moderate hot-bed or in a pot, under a runner glass, in your window, shading it for a few days, and as soon as they root pot them off into small pots, and in a month after they may be planted out for good. Peg your plant down to the ground if planted out, but if in a pot tie it up to a stick, or more than one if there are more shoots coming up.

FUCHSIA SHEDDEN'S FLOWERS (*J. A. Subscriber*).—You say the flowers drop as soon as they open, although you have changed the soil, pruned the roots, and given a larger pot, as remedies.—Are you sure your fuchsia does not want water, as we know no other cause for the flowers falling so soon? Try an abundant supply for a time, and let us know the result.

AMARYLLIS (*W. Ledger*).—You have these plants in 10-inch pots, some of them have flowered, and some have not; and you ask whether it is proper at the potting time to shake the soil away and report them, or merely let them rest, and grow them in the same pots without disturbing them at all? Whether the roots are to be preserved entire at potting-time; and whether the bulbs should be quite under the soil?—In reply, we have to observe that the true amaryllis are now fast going to rest; water them more sparingly; do not shake off the old soil from their roots, and do not report them till the roots increase so much as to split the sides of the pot. If the bulbs are to be buried in the soil; be also maintains that their roots should by no means be cut or mutilated, for they cannot be too old. Look over his directions again.

GLADIOLI (*Un Francis*).—You gladioli, planted the same week as Mr. Beaton wrote, have not made their appearance.—Turn out the balls, and if no roots are seen, the bulbs must have perished; but examine them, they may yet vegetate. If not, take them to the person who sold them to you, and make him supply others in their place.

RASPBERRIES DESTROYED BY AN INSECT (*Rev. C. Churton*).—Last year the blossoms and fruit in your Shropshire garden were repeatedly destroyed, by being partially eaten through the stalk just below the fruit. Unless you can send us one of the marauders we cannot tell you his name, but we suspect that it is a weevil somewhat like that described at the first vol. of our *Illustrations*. The copper-coloured weevil (*Curculio cupreus*) eats half-way through the stalks of plums, deposits her egg in the wound, and leaves natural decay to bring the fruit to the ground. If you find one of your enemies, oblige us by sending it to us in a strong pill-box.

NAMES OF PLANTS (*W. Ledger*).—Your bulbous-rooted plant is *Fritillaria meleagris*, a native of England, and commonly known as the Guinea-flower, or Chequered Daffodil. Your shrubby plant is *Daphne pontica*. It may be increased by grafting on the common Spirea Laurel. You will find something about it at p. 224 of vol. i. (*J. W. Preknon*).—The drawing you have sent us of an orange-coloured flower streaked with scarlet is a portrait of *Abutilon striatum*, or Striped Abutilon. It is a greenhouse evergreen shrub, and a native of Brazil. (*A. A.*)—The weed upon your lawn "with leaves spreading out flat as rays from a centre, so flat that the scythe cannot touch it," appears to be the Buck's-horn (*Polygonum coronopus*). It is a most troublesome weed. Serve it as we recommended, at p. 61, the dandelions to be served.

STRAWBERRIES IN BLOOM (*A. A.*).—Water them freely, notwithstanding the cold weather, if rain does not occur.

DIELYTRA STRICTA (*J. W. Irving*).—This is a hardy herbaceous perennial native of Siberia; stem about a foot high; flowers purple, blooming in June and July. It is easily propagated by dividing the roots; and it will flourish in any rich light garden soil. Of *Plumbago* *Lorpenia* you will find the information you require in our columns to-day, vol. i. Of *Zausseria* *californica* see *Illustrations*, where you will find all the information in our 1st vol., at pp. 10, 235, and 295.

CUPHEA PLATYCENTRA (*Ibid.*) is a greenhouse evergreen shrub. Its flowers, scarlet and white, appear in June. It is a native of Mexico. For its culture see p. 208, vol. i.

CEREALIAS NONI *Blattaria* (*Un. Amateur Subscriber*).—You will have seen, at p. 62, an answer to your question as to their treatment now that "they look very bad, and the leaves are turning brown."

WORMS AND ANTS (*Hortus*).—To drive these away, see what we have stated at p. 124 of vol. i. and at p. 31 of the present volume. The most powerful application for the destruction of worms is a solution of corrosive sublimate, but remember that it is a deadly poison, and that any chicken, or other living creature, eating a worm so killed will share a similar fate. Dissolve two ounces of corrosive sublimate in every forty gallons of water, and soak the ground with it thoroughly. It is most effectually applied when the worms are near the surface in wet weather.

SILK (*H. R.*).—The silk manufacturers will purchase this produce of your silk-worms, and any one informed us of a party who will purchase "a large quantity." Our correspondent also wishes to know how long the silk-worm's eggs are hatching.

ERRATA.—At p. 62, col. i, line 31 from top, read "FUCHSIODES." The correspondent who has pointed out this observation, in reference to *Rhododendron*, mentioned in the same page—*Rhododendron* is indubitably of the masculine gender, and therefore requires, in the termination of the adjective, volubilis, not volubile. The error seems to have been very generally adopted. Substantives (from the Greek) ending in *as* are apt to deceive, as *pagan*, a beard.

PEAS BOILED IN THEIR PODS (*Rev. C. Chapman*).—Our correspondent observes truly, "We often have, at continental tables, dried, green peas boiled whole—the pods I mean; sometimes they are sliced like French beans, sometimes served up whole as gathered from the plants; they make a delicious vegetable, but I never met with it in this country." In great simplicity I one day ordered a dish of the young peas to be gathered and sent to table whole and whole; they would not do at all; the more they were boiled the more stringy they were. I was told afterwards that the peas I had eaten abroad were of a particular kind, used only in this way, and never shelled. None of the nurserymen or seedsmen in this neighbourhood know anything about it, and seem civilly incredulous. Can you tell me the name of this pea, and where it is to be had in this country?—We often have wondered that this "all-eatable pea" has not been introduced into England. It is the *Pisum sativum macrocarpum* of botanists, and may be had of any seedsman at Paris under the name of *Pisum-parchment*, or *Pisum-mange-tout*.

PAIT-TREES BADLY PLANTED (*Ibid.*).—These, which you say were put into holes just large enough to receive the roots, in "a very stiff coarse clay, described by some one as in winter all bird-lime, and in summer all cannon balls, holding water like a sponge, only not parting with it so readily," must all be taken up next autumn, and replanted in "stations," as described in our first volume. Never mind their having been planted three years; they can be moved almost without feeling the removal, since you say "the roots have made no growth;" nor will they wither in their clay basins. You may apply to us to refuse to receive gooseberry and other fruit trees even now with advantage. Do not dig it in.

MANDEVILLA SEVEOLINS (*J. C. and A. Subscriber*).—You can obtain this from any of the nurserymen who have advertised in our columns. It will not thrive so as to blossom freely, except when planted in the border of a greenhouse or conservatory.

SWEDISH TURNIP STORING (*X. X.*).—Try cutting off with the top such a sprout of the bulb as to remove all the collar, or part from whence any sprouts can arise, and store the bulbs thus beheaded in layers, with earth, in a shed. In the case of carrots, this mode is most effectual.

YELLOWISH FORK (*J. Pidgeon*).—We do not think that these are sold ready made, but any blacksmith could make you one from our drawing and description, given at p. 289 of vol. i. They cost about 5s. each.

MONTHLY CALENDAR (*Ibid.*).—In this, "b" means beginning, or first half of the month; and "c" means end, or last half.

LOAM (*Constant Reader, E. Derham*).—You have made a great mistake in using "a sort of brick earth soil" for potting your camellias. It is quite true that, in some parts of England, farmers and brick-makers call brick-clay "soil" in applying this term to the soil in which neither clay nor sand predominates, such as is usually found to form the top spit of a rich pasture.

RANUNCULUS AWMING (*Juventus*).—Oiled cartridge paper would do for this, but calico, made water-proof by a preparation for which we will publish a recipe if you require it, would do better. You must not use manure abundantly every evening. Scott is a good manure for stiff land.

THREAD NETTING FOR GREENHOUSE (*G. Tye*).—We never saw anything of the kind, but you will obtain every information probably from Mr. R. Richardson, 21, Tonbridge-place, New-road, London. If you do not succeed write to us again.

BULLS (*Rev. G. F. L. Ouen*).—Any of the florists who advertise in our columns will supply you with genuine bulls. Messrs. Wilmont and Co. are florists, at Lewisham, Kent.

WINDOW TAX ON GREENHOUSES (*S. W. P.*).—We are very glad to find that the opinion we expressed to greenhouses communicating with parlours not being liable to the window tax, is confirmed by the following case sent to us by a correspondent:—"I beg to inform you that I was charged six additional windows by the assessor of taxes, but thinking myself aggrieved I applied to the surveyor, who, having examined them, took off the extra charge, at the same time stating that I was only liable to pay for the windows of the rooms communicating with the greenhouse or conservatory. I will thank you to introduce this in your answers to correspondents, for the information of your numerous readers who may be similarly situated. I may wish to add a word to the greenhouses, but are deterred from the fear of adding expenses in the shape of window duty."

DISEASED APPLE-TREES (*G. M. Lee*).—The canker in your trees may be caused, and certainly will be increased, by their roots penetrating into the subsoil—"a cold wet, clayey gravel." Draining this is desirable. We shall write fully upon the subject of this disease before long.

BLACK FLY ON CURRANT-TREES (*Ibid.*).—This is the *Aphis ribis*, or Red-currant Aphis. Striking with strong tobacco-water, or fumigating with tobacco-smoke, whilst the shoot reaches the ground all round, is spread over the bush, are the only effectual remedies.

ALPINE STRAWBERRIES (*Amis*).—You can obtain plants, probably, of any of the nurserymen near London. Planted out now, and well supplied with water, they will yield fruit in September.

LIGHT STABLE MANURE (*A. Constant Reader, E. Derham*).—This may be used for camellias, fuchsias, and geraniums, with advantage. One gallon to five of water will not be too strong for them, probably; but see Mr. Beaton's note, or test, in to-day's paper. To asparagus it might be applied in the same or one gallon to two of water. Do not give liquid manure to any crop just coming up.

WEEKLY CALENDAR.

M D	W D	MAY 24—30, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
24	Th	Q. VIC. b. 1819. Small Heath Butterfly.	Oriental Poppy.	58 a. 3	55 a. 7	10 14	2	3 29	144
25	F	PRB. HELENA b. 1846. Bees first swarm.	Common Aven.	57	56	11 7	3	3 23	145
26	S	Augustine. Ox. T. e. Grizzled Skipper Bfly.	Rhododendron.	56	58	11 50	4	3 17	146
27	SUN	WHIT E. Ven. Bees. Garden Carpet Moth.	Buttercup.	55	59	morning	5	3 10	147
28	M	WHIT M. Sandpiper first seen.	Dingey Iris.	54	VIII.	0 24	3	3 3	148
29	Tu	K. CHAS. II. rest. 1660. Stinging Fly seen.	Mountain Blue-bottle.	53	1	0 54	7	2 56	149
30	W	EMER WEEK. Ox. T. b. Swallow-tail Bfly.	Spearwort.	52	2	1 20	8	2 48	150

AUGUSTINE was the Benedictine monk sent to evangelize in England by Pope Gregory, as noticed by us in the calendar for March 12th. He landed in Kent in the year 596; was instrumental in re-animating Christianity among our countrymen; became Archbishop of Canterbury; and died on this day, about the year 607.

VENERABLE BEES were born at Jarrow, in the county of Durham, A.D. 672. Contemporary historians give ample testimony to his piety; and his "Ecclesiastical History" is a surviving evidence of his learning and industry. It is not an excess of praise to say that he was the best scholar and the most pious ecclesiastic of the dark age in which he lived. He died on the day to which his name is appended in our calendar, and in the year 735. His body was at first buried in the chapel of his monastery at Jarrow, but was afterwards removed to Durham, and placed in the same coffin with the remains of St. Cuthbert.

WHITSUNDAY.—This festival, superseding the Pentecostal feast of the Jews, celebrates the descent of the Holy Spirit upon the first Christian converts, Gentiles as well as Jews. (Acts ii.) Whitsunday is the seventh Sunday after Easter, and appears to have been annually commemorated even in the time of the Apostles. It has been thought that the name *Whitens* is allusive to the white garments, indicative of purity, worn by the early Christians at this season; but it is more probably derived from the Saxon word *Wita*, superior knowledge, it being the festival commemorating the gift of wisdom direct from God.

RESTORATION OF CHARLES II.—Although oak apples are worn on this day, it was not because Charles the Second was at this season of the year concealed in the oak at Boscombe. That concealment was on the 6th of September, 1651, three days after his defeat at

Worcester; but "Oak-apple day" is the anniversary of the king's birth, which was in 1630, and of his entry into London, after the Protectorate was overthrown, in 1660. The king's concealment in the oak is thus described in a little volume published at the time, and called "Boscombe":—"Colonel William Carolis (Careless) made choice of a thick leaved oak, into which William and Richard Penderel helped both the king and the colonel, and brought them such provision as they could get, with a cushion for his majesty to sit on. In this oak they continued most part of that day, his majesty resting his head on the colonel's lap, who was watchful that his majesty might not fall; and in this posture his majesty slumbered away some part of the day." An oak tree, said to have been raised from an acorn of the real "Charles's Oak," and enclosed within a brick wall, was growing at Boscombe but a few years since, and, probably, is there still.

PHENOMENA OF THE SEASON.—A very trustworthy correspondent, writing to us from Bury, in Suffolk, says:—"With us the nightingale sang on the 23rd of April, swallows appeared on the 25th, the cuckoo was heard on the 26th, and the redstart seen on the 29th. Perhaps you will oblige us in a week or two, in your entomological corner, with a figure of the 'Cicada,' 'Frog-hopper,' or 'Flea-locust,' (for by all these names it is known), and its history—'that destroyer of carnations and piceotes, and general defacer of almost every plant. How is it generated? The perfect insect is not seen till August, and yet we have the young now in abundance in the greenhouse, and even upon seedling plants under glass.' We will, before long, give a drawing of the curious insect to which our correspondent refers, and which is more popularly known as the 'Cuckoo-spit,' (*Tettigonia spumaria*).

INSECTS.—During the latter part of the evenings of this and the next month, a middle-sized brown moth may be seen very often flying in our gardens, and visiting our beds of cabbages and lettuces, of which its caterpillars are most destructive. This is the Cabbage Moth (*Mamestra brassicae*, and *Noctua brassicae* of some naturalists). It measures about 12 inch across the opened fore wings, which are dusky brown, clouded with darker shades, and marked with pairs of dark spots on their front edge; from these spots proceed the streaks which mark the wings across; there are various spots on the wings, some yellowish, and those in the middle surrounded with white, the kidney-shaped one with a whitish grey crescent round it, and blackish beyond; the wings have a grey, yellowish-striped fringe, and near this, at the point farthest from the body, they have a row of black triangular marks; the hind wings are light-brownish grey, with dark veins; the body and head are of various shades of blackish grey, with a darker stripe of the same colour down the centre of the back. During the day this moth rests on the shady sides of the stems of trees, or the branches of hedge-row bushes, and even by the side of clouds on the soil. The caterpillar is green, variously marked with grey or black, with a dark stripe down the back, and a dirty yellow one down each side; the spiracles (breathing holes) are white, surrounded with black, and close above the yellow stripe. The caterpillar is found in July, August, and September, feeding upon the hearts of cabbages and lettuces. The only remedies are, destroying the moths whenever seen, and hand-picking the caterpillars. The latter bury themselves in the ground, and remain in the pupa or chrysalis state all the winter.

MAY	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
24	Fine.	Showery.	Showery.	Cloudy.	Rain.	Cloudy.	Cloudy.	Fine.
Highest & lowest temp.	70°—51°	65°—40°	66°—44°	66°—45°	61°—45°	73°—45°	71°—44°	76°—41°
25	Fine.	Showery.	Fine.	Cloudy.	Showery.	Cloudy.	Fine.	Cloudy.
	73°—54°	63°—46°	67°—41°	65°—40°	57°—46°	75°—53°	66°—35°	80°—44°
26	Fine.	Showery.	Showery.	Fine.	Rain.	Fine.	Fine.	Cloudy.
	80°—59°	69°—47°	68°—45°	68°—41°	73°—39°	73°—36°	75°—36°	83°—51°
27	Stormy.	Cloudy.	Showery.	Showery.	Cloudy.	Fine.	Fine.	Fine.
	82°—60°	66°—51°	63°—43°	56°—43°	67°—48°	71°—43°	81°—50°	67°—34°
28	Fine.	Fine.	Stormy.	Cloudy.	Rain.	Fine.	Fine.	Fine.
	80°—51°	70°—41°	65°—44°	59°—48°	67°—49°	67°—41°	91°—56°	77°—37°
29	Fine.	Fine.	Rain.	Showery.	Rain.	Fine.	Stormy.	Fine.
	72°—54°	71°—46°	54°—34°	58°—44°	55°—48°	73°—36°	77°—45°	81°—53°
30	Fine.	Fine.	Cloudy.	Cloudy.	Fine.	Fine.	Fine.	Fine.
	74°—49°	73°—46°	64°—48°	61°—45°	64°—39°	79°—44°	77°—44°	72°—39°



A SUBJECT for very just regret occurs in the want of precision in the language, or rather in the names, employed by the cultivators of the soil. Take as examples the terms "*Marl*" and "*Loam*," and ask any six farmers, or any six gardeners, to explain the kind of earth which they intend when they make use of either of those terms. Not one of their definitions will be quite alike, and some of them so irreconcilably different as to shew that they are speaking

of different things. It was but the other day, after Mr. Beaton had recommended the employment of loam in potting camellias, that a correspondent wrote to inquire whether he was right in employing brick earth to those flowers, for brick earth is known as "*loam*" in the district where he resides. Another intelligent correspondent, from the neighbourhood of Bungay, writes as follows:—

"The term '*loam*' has such a wide field of appli-

cation, from the compost mentioned in vol. i. p. 124, to the sand I here obtained from a pit; and loam is also referred to as the rich matter that is obtained from rotted turves from old pastures. Mr. Beaton, in this week's number (10th May), in his interesting article on camellias, refers to a 'mellow loam' which, 'to the touch,' is 'like new flour from a mill.' I have often turned it over in my mind, how these different loams could be best distinguished. Now, would not an article on the best way of managing loams from a pit, before they are brought into use, be very acceptable to young hands? I cannot help thinking it would. Few young gardening aspirants have any very definite idea of what is meant by 'loam,' or how to bring it into a state fit for use. At page 14, vol. i., you give a definition of good loam, but the majority of cottagers and many amateurs are excluded from the privilege of getting soil from an upland pasture except in small quantities, and the pit is their only source of supply. From necessity I have used a good deal of such loam fresh from the pit to make up borders, and to improve the staple of soil, and also a mild white clay which is intermixed with chalk-stones, and pulverizes to atoms with the first frost.* So far as I have yet been able to judge, the effect has been good."

Now, with regard to the meaning of the term "loam," as employed by ourselves, we never have, nor shall we ever employ it in any other acceptation than what we believe to be its legitimate meaning—namely, soil easily crumbled, that does not quickly become dry in summer, or too moist in winter. This kind of loam admits of many qualifications. It is *turfy*, when taken from a pasture, without first removing the grass or turf from its surface; it is *sandy*, when sand renders it more light than is desirable for a fertile soil; *clayey*, when clay is similarly rather in excess; *chalky*, if it contains more than the usual amount of chalk.

In addition to these distinctions, gardeners often employ some others, which though quite intelligible to themselves, yet convey no meaning to the unpractised amateur. Thus, by *māiden loam* is always meant soil taken from the surface of an old pasture; and by *hazel loam*, a rich crumbly soil of a dark brown or hazel colour, owing partly to its containing more than the usual quantity of decaying vegetable matters.

Loam, then, or soil crumbly and constituted so as neither to be too wet nor too dry under ordinary circumstances, is useful for rendering light soils more retentive of moisture, and heavy soils less retentive, by being mixed with them. It is, also, one of the most useful matters for potting plants. For this purpose, whether from a pasture or from a pit, it had better be placed in a heap, and turned over four or five times during exposure for a twelvemonth to the sun, air, and frost, precisely as is directed at p. 14 of our first volume. For potting purposes it must not be mixed with dungs or any other highly stimulating

manures; but if the loam is obtained from a pit, it may be advantageously mixed with a small quantity of dead leaves, or of the bottom of an old wood stack, about one part to ten parts of loam, to be thoroughly incorporated by the turnings and year's exposure.

THE FRUIT-GARDEN.

THE FIG.—To no fruit-tree is disbudding of greater importance than to the fig. Let the soil be ever so carefully constituted to avoid luxuriance, still the fig, in a trained state, will produce a host of superfluous side shoots, as well as numerous suckers from the roots. Old worn-out trees, or those which have borne abundantly for years, may prove an exception, but thus it is with the majority. On examining the character of the wood as it springs forth, two or three distinct kinds may be clearly traced; distinct as to the proportion the thickness of the young shoot bears to the length of, what botanists term, the *internode*, or that part between each two joints. This internode, as we have before observed, furnishes by far the best criterion of fruitfulness in nearly all our fruit-trees, and should at all times be kept under examination, for it will at once furnish a key to the conditions of the tree, prospective as well as retrospective.

Of the three different kinds of wood, one will be found of an over-luxuriant character, long in the internode, and thick or succulent in substance; a second kind will be found almost as weakly as straws, lanky and spongy; and a third kind will be found robust, but short-jointed and compact. This last is the kind of wood to reserve for future bearing. This sort of wood does not ramble so fast as the others; and, whereas the first-named kind may possess internodes of two or three inches in length, the latter will frequently possess three or four joints in that compass. These things may not be sufficiently manifest for two or three weeks yet; when, however, the young growth has advanced so far, we trust our readers will be ready to study their character.

The present bearing of these remarks refers to disbudding; implying, thereby, a *selection* of the wood which is to produce the next year's crop. Much allowance must be made for the habit of varieties of this fruit: some naturally produce a grosser shoot and a larger leaf than others; some, as the *Lee's Perpetual* or *Brown Turkey*, seldom produce wood too strong, their bearing properties are so great. As soon, therefore, as the character of the young shoots can be distinguished, so soon should disbudding commence; for, in the majority of figs on walls, by far the largest proportion of young shoots will have to be stripped away. As this process of rubbing off buds will have to be repeated at intervals through June and even July, it is well to proceed somewhat cautiously at first; in fact, with the amateur, the little niceties connected with his miniature fruit-garden will furnish a constant source of employment; and, to a well-ordered mind, a kind of gratification which will be sought for in vain in the mazes of the world's struggles for wealth or fame. Here there are no rivals, no capricious fluctuations or oscillations, such as frequently cause the pendulum of public life to waver in a painful degree. The Creator has so ordered nature, that a steady attention to her axioms or first principles will, in the main, ensure success in horticultural operations.

* This "mild white clay" is a genuine *marl*. Marl is a mixture of chalk with either clay or sand. In the first case it is "a clay marl;" in the second, "sandy marl."

Another matter must receive attention: the root suckers must be thinned out. We need scarcely say that no more of these are to be retained than are necessary to fill the vacant spaces on the wall, or to tie down on the older branches. And here, the whole question assumes a wider bearing; for, on looking over our notes as to past proceedings, we find that although we have several times suggested the tying down of young spray of a fruitful character on the stems of all the spur fruits, yet we have not hinted at the same course with the fig. We may here advise, then, what we consider to be the very best points of practice with this tree.

Firstly.—To train it, if possible, perpendicularly, in order that the main shoots running in parallel lines may always remain in the same position, and be equidistant at all points.

Secondly.—To keep those permanent "leaders" a greater distance apart than is usual; say 10 inches in the small-leaved kinds, and 15 in those of the large-leaved section.

Thirdly.—To commence, as early as possible, a system of tying down the short-jointed young spray before alluded to; observing to tie down no two young shoots side by side.

Fourthly.—To encourage no root suckers beyond what are requisite for the above purposes.

We may here state what our reasons are for this course. In the first place, we are decidedly of opinion that, with regard to all trained trees natives of warmer climates, it is of the utmost benefit to keep a portion of the wall totally unshaded, in order that by absorbing freely a portion of the solar rays, it may prove a reservoir of heat; giving its heat out again gradually in the neighbourhood of the fruit. Now, the fan system is not complete in this respect; indeed, is not thoroughly adapted for a tying down system. It would scarcely be possible to keep the leaves equally divided by this system; for it is evident that the point from whence the branches diverge, and which form a letter V, as before observed, would be more crowded than some other parts; indeed, on the fan principle, the further the branches extend, the wider they are apart. If, therefore, the tying down be admitted, and the propriety of getting the wall itself heated be also allowed, we conceive that the parallel training follows as a matter of course.

If, however, old and well established trees, which answer well, are fan-trained, our advice is, "let well alone;" this is another affair. We speak of starting young trees on a settled system. For the present we leave the fig and pass on to miscellaneous matters.

APPLES.—*The American Blight.*—In the course of the month of May this tremendous apple-pest will begin to reappear, unless fairly exterminated during the winter. We have some trees which were infested, and which we fairly bathed, as it were, in the liquor before adverted to, by means of hand syringing, several times repeated. We are almost inclined to flatter ourselves that the enemy is departed; if, however, he return, we shall apply train oil or gas tar by means of a painter's brush; for, although a *wholesale* application of these powerful things is very injurious to the bark of the trees, yet we have often used oil, in *light* cases, without any perceptible injury. When, however, the tree is much infested, oil is out of the question. Nevertheless, mere hand-brushing is a great disturber, even with a dry yet coarse brush. Still it is safe practice to use some daubing mixture, which will at least cause them to suspend operations, even if it does not lock them up

in their dens. For such a proceeding, we would suggest another eligible application at this period. Beat up three ounces of soft-soap in a gallon of warm water, add three handfuls of flowers of sulphur, and then add half a gallon of strong urine from the stables; beat the whole well together, and keep adding pure clay until the whole is a thick paint. This, daubed into their holes, will wedge the insects up in prison long enough for them to be destroyed with the caustic powers of the mixture, and will not injure the trees like oil. Towards the end of the month the apple-trees in fruit will want hand-picking carefully, to free them from the caterpillars. Those amateurs who have only a few dwarf trees ought not to leave on them one of these predators. Such operations will surely form, at times, a recreation for the female members of the family.

CHERRIES.—The cherry aphid or black fly (*Aphis cerasi*.) may be expected at the end of the month. Tobacco-water is the best remedy, and they may either be dipped in a bowl, like the plums, by bending the young shoots forward before they are nailed; or the whole tree, if much infested, may be syringed with the mixture.

The disbudding of cherries, or thinning out, may stand over for a couple of weeks or more. The operations necessary with the cherry, with the exception of a clearance of the aphides, are by no means so urgent as with some of our other fruits.

THE FILBERT.—The ground suckers will shortly make their appearance. Let them be stripped clear away, according to previous advices.

THE BLACK CURRANT.—Here, again, the aphides frequently create serious depredations. Preventive measures are the best; and such consist, in the main, by supplying a permanency of moisture to the root. When the shoots become much infested, tobacco-water, according to our plum and cherry recipes, should be applied; and, although rather expensive, it will assuredly pay for the application, inasmuch as not only the current year's crop but the perfecting of the future year's wood depends on cleanliness.

R. ERRINGTON.

THE FLOWER-GARDEN.

PILLAR ROSES.—There is no kind of shrub, however beautiful, that is used to ornament a garden scene, so well adapted to take various forms as the rose. It can be used as a dwarf tiny plant to fill the smallest bed; as a bush to plant amongst other shrubs; as one to plant in beds of larger dimensions in groups; as a tall standard, to form avenues of roses on each side of a noble walk; standards can also be planted in groups on a lawn. These, also, are often planted in the centre of a large circular bed, with half standards around them, and dwarfs in front, thus forming an amphitheatre of roses, which, when in bloom, is one of the finest sights in the floral garden. It can also be used to cover naked banks and dry rocks, and as a climber to ornament the amateur's villa, or the more humble abode of the cottager; also to plant against naked walls or palings, and to form drooping shrubs when grafted on high standards, to wave gracefully their boughs, laden with fragrance and bloom, in the warm gales of summer and autumn. All those forms are very beautiful; but amidst them all, elegant though they are, there are none that show off the beauty and grandeur of the rose with such effect as training them up pillars. We cannot too strongly recom-

mend to our amateur and cottage readers this mode of cultivating "the queen of flowers." Fine examples may be seen in various places, and in most nurseries. Perhaps the finest one of the kind may be seen at the Cheshunt Rose nurseries, belonging to A. Paul and Sons. This particular pillar rose is named *Wells's Garland*. Though not a first-rate rose, yet the great number in immense clusters that it produces gives it a splendid appearance at a short distance. A strong pole, some years ago, was set firmly in the ground, the rose planted at its foot, and three shoots trained up round the pillar. These, in consequence of being twined around, have broken into shoots, bearing flowers all the length of the pole. These shoots bear such an enormous quantity of flowers that the pillar may be seen at a considerable distance, looking then like an immense wreath of snow hanging gracefully in the air. We mention this as an example which may be easily adopted by any persons that can procure poles for the purpose, and will take the pains to train the roses properly. The poles, when single, ought to be pretty stout, and set firmly in the ground, or they may be blown down by strong winds. More slender poles may be used if placed in a triangular form, about three feet from each other at the base, and the ends brought together at the top. Tie them together there with some strong tarred cord, or with stout copper wire. They will, in this form, stand the strong gales much better than when planted singly. The best kind of poles for this purpose are young larches—the thinnings of plantations—they last much longer than any other kind. Should you adopt the triangular pillar, you may either plant three roses of the same variety or have three different kinds—planting one at the foot of each pole. This being a matter of taste, we may leave the choice to the cultivator. Train the roses from pole to pole, so as to completely hide them when in full foliage and flower: they will then form a beautiful tall pyramid of flowers. Our cottage friends may easily have pillar roses, as in the country such poles may be had almost for nothing. It is true that larches do not grow everywhere; and, in the case of there being none near you, other kinds of poles may be used—such as oak, ash, or hazel. These will last a considerable time if the ends that are in the soil be charred, and then dipped in pitch while warm. Set them in the sun some time till quite dry previously to using them.

Pillars for roses are, in the gardens of the gentry of this country, often made with iron rods, with arches of the same, or small chains hung loosely from pillar to pillar, so as to form beautiful festoons of those lovely flowers. These arches, and chain festoons of roses, on each side of a terrace walk, have a beautiful effect. Sometimes the arch is thrown over the walk only, and the roses trained over head. In one instance, the three modes are happily combined, and with the happiest results. This instance to which we allude is in the gardens of the amiable Mrs. Bosanquet, of Broxbourne Bury, near Broxbourne, in Hertfordshire—a lady whose skill and success in cultivating roses are well known for many miles around her neighbourhood. A visit to her gardens, where flowers of all kinds that grow in the air are cultivated to the highest point of excellence, is a rich treat, to be remembered with feelings of the highest delight. The remark has often been made that the love of flowers has the effect of making the possessor happier, wiser, and better; and never has this axiom been better exemplified than in this instance. This lady takes great

delight in her flowers, and spares no expense to have the garden kept in the best state of cultivation. She is a kind neighbour to her equals, a good mistress to her servants, and a benefactor to the sick and needy—thus proving the truth of the axiom above referred to. There are, no doubt, hundreds of such characters in this country, lovely as their flowers, "doing good by stealth, and blushing to find it fame." May their number be greatly increased throughout the land; and may THE COTTAGE GARDENER be one of the means of that increase.

To return to iron pillars. Our amateur friends willing to be at the expense of erecting such, may easily ascertain the cost of any respectable ironmonger. These may either be formed of a single upright rod, or with four rods at about nine inches distant from each other; thus forming a square pillar, fastened with cross pieces of strong wire. The rose may be planted in the centre, and the branches as they grow be trained to each corner rod, and small shoots trained between them. Bring all the shoots to the outside, and do not allow any to twine round the rods, but tie them to each with bass matting or small twine. These can be easily then loosened from the pillars whenever they require painting, an operation that must not be neglected, as the iron will soon rust, and thereby injure the plants, and be very unsightly. Previously to planting the roses make the soil very rich, as you require those roses to grow quickly in order to flower freely, and cover the pillars, arches, and festoons as soon as possible.

PRUNING.—Pillar roses should receive a kind of temporary pruning about November. At that time shorten in the long straggling branches only. In the beginning of March, prune in the side shoots to three or four eyes, and tie in the leading ones to nearly their full length. Take away all coarse, strong, glutinous shoots—those robbers of the strength which ought to be husbanded to nourish the flower-bearing branches. Other matters call for our attention, so we must defer the list of kinds suitable for this purpose till our next Number.

INSECTS.—The rose caterpillars* will now begin their destructive attacks upon the leaves and young buds of the rose. No application of any liquid that we know of will destroy these destructive insects. The only way is to crush them with your finger. "The worm i' th' bud," alluded to by Shakespeare, is this insect. In the bud, then, you must look for it; but too often the effect is discovered before the cause; or, in other words, the buds containing the flowers are eaten by this caterpillar before you perceive its presence; but this is the effect of want of observance. We advise you, therefore, earnestly, to be diligent every day in examining your rose bushes, and crush the enemy before he has destroyed your rose buds, and thus made of no avail all the pains, cost, and anxiety you may have bestowed.

FLORISTS' FLOWERS.

ANEMONES.—The fine double varieties will now be beginning to expand their variously-coloured flowers. Protection from heavy rains, sleet, hail, and cold

* The caterpillars attacking the leaves and buds of roses are those of more than one species of moth, but the most common are those of the *Argyrotaea Bergmanniana*, or *Tortrix rosana*. The moth is very small and beautiful, and is often very numerous in gardens, and about hedges, late in July and early in August. The caterpillar draws the young leaves of the rose together by its web, and pierces, with numerous holes, the mass thus formed. The caterpillar is about half an inch long, of a dark flesh colour, with a black head. The remedy is to open the leaves attacked, and to destroy their assailant.

blasts must be continued. Unfortunately we have still, occasionally, very ungenial weather, which renders those shelters still necessary: yet do not cover up too much. Expose them to the sun whenever his beams appear moderate. Should the weather have become warmer before these lines meet the eyes of our readers, and the sun shine forth in all his strength, shade will then be as necessary from too great heat as it has been, hitherto, from cold. The gardener is a creature of watchfulness against extremes, at all times, and of all kinds. Too much wet, too great drought, too much heat, and its opposite, too much cold, the lover of his flowers will be constantly guarding against, and, by the proper appliances, negating the ill effects of those extremes.

ANEMONE SOWING.—Anemone seed may now be sown. The way in which the greatest success was achieved that we ever knew we shall try to describe. We are quite certain, if the following directions are faithfully carried into practice without any crinkum crankums of would-be gardeners, the result will be highly satisfactory. First, fix upon your bed or beds in a moderately warm sheltered part of your garden. Then remove the old soil away from the beds to the depth of 16 or 18 inches, according to the situation of your garden. If it is low and swampy, with a wet clay bottom, do not dig so deep: if high and dry, or with a sandy or gravelly subsoil, you may go a little deeper. The soil being removed, then put in from four to six inches of unmixed coddung, such, for instance, as might be gathered up with a spade in the fields where these animals feed. Upon this layer of dung place as much good fresh loam from your compost yard as will raise the beds to their former level, or a little higher. Make the surface very fine, and then sow the seed. Anemone seed requires to be well rubbed with the hand, either amongst some sharp sand or finely sifted coal-ashes, to separate the seeds. When the seed is sown, cover it immediately with some sifted, light, sandy soil, three-quarters of an inch. It will soon come up, and should be frequently watered in dry weather. Beds so made will flower the same year, and will produce an amazing quantity of truly magnificent flowers.

T. APPELEY.

GREENHOUSE AND WINDOW GARDENING.

GROWING CYCLAMEN SEED.—I was much amused, one morning last week, on observing a strong looking countryman running after me along a shady walk in the pleasure grounds. He was nearly out of breath, and oozing at every pore, when he came up to me. He was carrying a large plant of the *Cyclamen persicum* under his arm—and a beautiful plant it was—in a nine-inch pot, and just going out of bloom. "Well, sir," quoth I, "you seem to have overslept yourself this morning, being in such a hurry so early." "No, master, begging your pardon, I am seldom in bed after five in the morning; but I am out of breath." "I see you are, and out of the way too: don't you know that we are very particular here about letting strangers into these gardens." "I knows you be, but I am no stranger; the baronet knows me since he was a boy: I rent under him at Crowfield, only four miles across; and I was coming over to see him this morning, and I heard say that you have been writing a book about flowers, and I says to my wife last night, dash me if I don't take that 'ere cyclamen over to-morrow, and see Sir

William's gardener about it. Perhaps he can tell me the reason why it won't seed with us. And here I am, rough enough, as you see, owing to this cold wind; but, thank goodness, I have a comfortable home, and would be glad to see you if you was coming over our way. I am sure my wife would be very happy." "Very happy if you were to engage me to do her garden, I suppose, eh? But what is it you want me to do about this cyclamen: it seems like a large plant—how do you manage it?" "I keep it in the window along with the other plants, and give it no water, after the leaves drop off, till new leaves come again in the autumn. We had it many years, and it always blossoms better than any of them I ever saw; but I have tried all sorts of advice to get it to seed, but the more I try, the more it won't do it; so, if you would be so good as to put me on the right way, I am sure my wife—" "Yes, yes; I know you farmers are a kind-hearted, generous race; but here, in Suffolk, you have an odd way of insisting on your visitors smoking in your 'keeping rooms':* and when people go to Rome, they too often think they must do as Rome does, for fear of becoming marked birds: so, if you please, let me examine your plant, and if we can get it to seed next year I may come over to see it, but shall not engage to smoke. What is the largest number of blossoms you have seen on this cyclamen at one time?" "I have often counted fifty full-blown ones, beside those that were coming on and going off." "And it never seeds?" "No." "Does it shrivel much in summer when dry?" "Sometimes; but I believe my wife gives it water now and then." "You keep it always in the window?" "Always; and every year it tries to seed, but as soon as the stalks begin to coil, the top of them withers away, as you see." "Well, then, it strikes me that you either keep it too dry in summer or give it water in a saucer while at rest, and so damage the roots; and if the bulb, as we may call it, has to renew its roots every year, or is otherwise expended by too much drying, it has not sufficient strength left to make seeds, for that is the last and greatest effort of all plants. Keep the soil moist as long as the leaves are green; when they fade, plunge the pot in a border in front of your house, so as to be an inch below the surface; and, if the soil of the border is heavy, put three or four little stones under the pot, which, in showery weather, will assist the drainage better than if the bottom of the pot were resting on the solid mould. Thus the bulb will be kept in a uniform state during its resting time—neither too wet nor too dry. In September, as soon as the new leaves appear above ground, raise the pot till the surface of it is level with the top of the border, then water it, and leave it out as long as the weather is favourable. The leaves will be more firm, and their footstalks much stronger, if they are first allowed to come to their full size out of doors. Many gardeners turn these cyclamens out of their pots, and plant them in the borders, about this time, to be repotted in the autumn; and that plan answers very well with them, but it is more troublesome for amateurs, as the roots will spread in the border before the leaves appear, and on being removed are very liable to get broken. They must also be fresh potted, and the more late that is done in the autumn the more troublesome they will be to pass through the winter. Therefore, it will be safer, and just as well, for the dry cyclamens to be left in their pots: but to leave them in a window, or on a shelf to dry all the summer, is poor gardening indeed."

* Keeping room, a local name for the parlour.

GLADIOLI.—These will now be pushing up strong ribbed leaves; and they require abundance of water, and as much air as can be let in. When it is a dry summer, their leaves are subject to the ravages of the red spider; but these are easily kept down with soap-water, as Mr. Appleby says (page 67); and the leaves of gladioli are the easiest to clean, as you have nothing to do but dip a soft rag or sponge in plain or soap-water, and, beginning at the bottom, rub them closely between the palm of your left hand and the wet sponge. This will invigorate any leaf, and particularly these sword-shaped leaves, and keep them free from various kinds of insects if persevered in regularly, or systematically, as we say. Without a system, gardening is little better than a lottery.

CINERARIAS.—If seeds of these are sown this week, or, at the farthest, before the middle of next week, and the young plants well nursed, and got into three-inch pots before the end of July, they will come into flower late in the autumn, and so go on through the winter. One thing is absolutely necessary, in order to bloom them so early from this sowing, and that is that they be not shifted into fresh pots till the central stem is seen rising out of the three-inch pot; and then you may put them in five-inch pots, in a rich compost, supplying them with liquid manure occasionally.

CHRYSANTHEMUMS.—Cuttings, or divided slips, of these, as soon as they are well rooted, may now be planted out of doors in a rich piece of ground; and as soon as they begin to grow freely, the tops to be pinched off, in order to get the plants well furnished with blooming shoots from the bottom. This is an easier way to get fine bushy plants of them than growing them all the summer in pots; but they should be taken up early in the autumn and potted before they get too strong, and their removal would be safer if done in dull or rainy weather. It is not at all too late now to put in cuttings of them, and they will strike or make roots without the aid of glasses, if they are merely put into some light compost in a shady place, and not planted too thick, nor made longer than four inches. Let them have four inches between them each way. When they are rooted, and begin to grow freely, the very tops ought to be pinched out, and then the bottom eyes, to the number of four or five, will soon make as many shoots, so that by this plan you can have a nice plant at once from the cutting bed. When these new shoots are just one inch long is the proper time to remove them. A garden trowel is the best thing to transplant them with, as you can take up some of the soil along with the roots, so that they will hardly know that they were removed, particularly if you give them a good watering as soon as they are fresh planted; and by the time they are six inches high you may stop all the centre shoots, or those that appear the strongest. Such shoots as are weak may be left as they are, and the force of growth at that season will soon make them of equal strength with those that were stopped. Thus a handsome bushy plant may be formed easily, and more so if the outer branches are trained or tied out to sticks, so that the sun and air may reach the middle ones, and all secondary or small side branches be rubbed off as fast as they appear. Another way I have seen in practice, but not in print, is well worth trying, and this is about the right time to begin it. Plant two or three strong cuttings in a very small pot, say a three-inch pot, and place them either under a hand-glass or in some close shaded place. When they are rooted, choose one of the best, or strongest, and discard the rest; retain it in the small pot till it is five or six inches

high, then pinch out the point and give it abundance of weak liquid manure. This will cause it to make three or four side shoots, and if it makes more rub them off. As soon as these side shoots are fairly in growth, pot the plant into the next largest sized pot, using very rich compost, and nothing but liquid manure to water with throughout the season, and the plant or plants to receive only one more potting; that is, three pots in all. Dwarf plants are thus formed, the flowers of which are very superior to those reared by any other mode of growing the plants. When these plants are intended for exhibition, all the backward flower-buds are cut out with a scissors, and only a moderate portion left, and such as may be expected by their size to open at the same time.

As we of *THE COTTAGE GARDENER* are a kind of happy family among ourselves, who can talk over these little matters just as private families do when the curtains are drawn, and they sit round the cheerful fire, with their feet on the fender, let me hear how many of our younger branches will carry off the best prizes next autumn with their pot chrysanthemums thus reared. But any of us who may enter the lists in competition with others not of our circle, should maintain that kindly disposition for which we are already much noticed; for, assuredly, competition even in flowers is a sad tempter against the best feelings of our nature; for I have seen as much of it, and of its effects, as most gardeners of my day; and the best of us are but poor humanity, after all.

D. BEATON.

THE KITCHEN-GARDEN.

WE have now fully entered upon one of the most interesting periods of the year, and vegetation is making rapid progress in all directions, although the present month has certainly been remarkable for its sudden atmospheric changes from heat to cold. A few days of excessive heat, with thunder and hail, were succeeded by others with cold winds and cutting frosts at night; thick fogs, also, and heavy dews have prevailed; and, although the effects of such changes are clearly visible, yet we still find there is a general prospect that the earth will yield an abundant return to reward the skill and persevering industry of man.

HOING and thorough surface stirring must be well and regularly attended to amongst all growing crops; and all blanks, or failures of seedlings, or planted-out plants, filled up, as every foot of soil that is suffered to remain vacant is, of course, a loss to the cultivator: reducing his profits, and thus increasing the rent of the ground, every portion of which should be fully occupied with growing crops.

PEAS and **BEANS** should now be topped; the latter, if affected with the black aphid or dolphin (*Aphis fabae*,) should have a washing with soapuds. One or two good applications will effectually destroy these obnoxious pests, and the soil will also be greatly benefited by the operation.

CARROTS.—The last week in May or the first week in June is a good time for sowing a crop of this vegetable, for the supply of the table with nice young carrots during the autumn months.

TURNIPS should be sown in succession, and, by all means, drilled. As soon as they are up, the Dutch hoe can be passed between the drills, and a short-toothed rake across them. A few dry wood ashes or charcoal dust will be found very beneficial to strew over such crops as may be affected by the fly. This application will also encourage the growth of the

plants, and keep the surface of the earth open and friable. The main crops of *Swede turnips* should now also be sown without delay.

MANGOLD-WURTZEL and RED BEET, as soon as they can be seen above ground, should be surface-stirred; and all vacancies filled up by transplanting.

BORECOLES, such as *Brussels sprouts*, *Buda* and other *kales*, must be duly pricked out; and, where this operation has been already attended to, some of the strongest plants may be got out between the early peas and beans. Some of the *broccoli*, *coleworts*, and *celeri*, for use in autumn, should also be pricked out and planted in succession.

CUCUMBERS, on the ridge and in slight hot-beds, should be nursed on by surface-stirrings, applications of tepid water, timely stopping, and by mulching the surface of the soil.

MELONS.—The full growing season for this delicious fruit having arrived, to secure a good crop they should be supplied with sweet holding soil, without the addition of manure of any sort, and a kindly moderate bottom heat maintained: taking care that it does not rise so high as to scorch the roots. Excessive heat to the leaves, also, must be avoided, otherwise they will grow weak. The plants must be stopped, the first time, at the second joint, allowing three shoots then to grow to the length of six or seven joints; then stopping again the side shoots, which, if a fruitful variety, will show fruit at every joint: these shoots must again be stopped one joint above the showing fruit. The more that can be managed to get altogether into bloom, on some sunny day, the better, as by this means a choice of the best and handsomest fruit may be obtained for swelling, and all the inferior and ugly-shaped fruit can be taken off. As prevention is better than cure, a little sulphur vivum, mixed with hot lime or clay to the consistency of paint, should, as before recommended, be brushed occasionally on the inside of the pits or frames, to guard against the attacks of the red spider, which may be effectually prevented if taken in time.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 29.)

ONE of the loveliest of evergreen shrubs is the arbutus, or strawberry-tree, and in this month it may be transplanted. It is a very beautiful addition to the garden, and should be placed singly on the lawn; or, if among shrubs, should stand in a conspicuous place that its full beauty may be seen. The rich glossy foliage and delicate flowers make it a charming ornament to the autumnal garden; and it needs little care except in severe weather, when it should be guarded from the frost by litter laid over the roots, and, if convenient, a piece of matting fixed over the top would be a sufficient safeguard to the boughs; but where this is not easily to be done, they may be left to brave the winter; and they must not be considered as dead even if the branches die, for the tree itself is rarely killed, and, if suffered to remain till summer, will almost certainly sprout again, and form a handsome plant that season. Many persons have been known to destroy their dead-looking plants after very severe winters, while others, who have suffered them to stand, have been rewarded by their return to health and beauty. We must not mind keeping an unsightly shrub among our rich clumps, or letting

it stand for a time withered and blighted on the neat grass-plot—it may reward our patience, and become as beautiful as ever. Are we not thus reminded of some plant in the domestic garden—of some one, too, in the garden of our heavenly Father—that has stood for years leafless and dead, till hope itself had almost withered; and yet that plant has sprung into life, at last, and become the pride of the garden.

The common arbutus is a native of Italy and Spain, and also of Ireland, whose mild and genial air, and fruitful soil, would, with active cultivation, rival many southern countries. The less hardy arbutus, distinguished by *unlearned* gardeners as the oriental or eastern arbutus, requires more care, but blooms earlier in the year, and has far more beautiful flowers and foliage. This variety is a native of Greece; grows to an enormous size in the island of Cyprus, and abounds in Palestine. In that once rich and glorious land our own common arbutus also grows, flowering much later than the other even in that warm climate, and attaining a considerable size. In the deep rich vales of Palestine they grow into splendid trees, and are sometimes found with stems measuring six feet in circumference. Mingled with the fruitful and fragrant trees of the Holy Land, the arbutus is so general and conspicuous as to be particularly noticed by travellers; and its fruit is even more beautiful than its flower. When we think that the little shrub we cherish here, scarcely exceeding a few feet in height, grows to such a stately height and size, even now, in a land lying desolate and neglected; when we think of our garden flowers growing wildly and richly on those hills and plains; of the "lilies" that spangle the fields, and the mighty olive trees that stand like eternal monuments among the ruins and desolation around them;—what ideas arise of what Palestine was in the days of her past greatness, and what she will be in those of her coming glory. Dear as is our British home to British hearts, yet who can refuse to "pray for the peace of Jerusalem?"

The arbutus likes a good soil, and, if possible, *peat*. If a sheltered spot can be set apart for this shrub, so much the better. It is worthy of some little care.

If any lady or cottage gardener possesses a *camellia japonica* as a pot plant, they must now carefully shade it from the sun, as, if exposed to its influence, the rich green of its polished leaves fades, and becomes a sickly yellow; therefore, from this time till September, let them enjoy only the early morning sun. One is apt to fancy that a greenhouse plant must love the sun, but in this case it is not so. Let them have light, only not *sunshine*; but these charming flowers will thrive in shade where most other plants would die, and are therefore singularly adapted to form one of that class so pathetically and expressively termed, in p. 282 of vol. i., "prison plants." The glowing blossoms of the *camellia*, so richly coloured, so fine in form, so firm in texture, charm the eye; and they possess no scent to make them unwholesome in the closest room; while the ease with which the plants are managed will enable many persons to cultivate them whose time or means might preclude their undertaking those of more peculiar habits. The little interesting trouble they give is only with regard to watering. Let the bottom of the flower-pot be well covered with pieces of broken earthenware; let the soil be lumpy also, to permit free drainage, which is essential to the plant; and during the growing season water should be freely given, but at other times it should be kept rather dry. After the flower buds are formed is the time of

peril, for if they are "droughted" only for an hour the buds will certainly drop off; and they will do so, too, if the soil is soddened. Care in watering, a loose, lumpy state of the soil, and shade, are the few and simple rules for flowering these lovely plants; and they are just sufficient to interest and amuse without expense or difficulty, and this, to a town florist, is of some consequence. These flowers are so truly beautiful that I hope many may be induced to attempt their culture, both as window and border plants, and if they succeed in blooming them I am sure they will be abundantly repaid. The leaves will sometimes become dusty and dirty, and then they will be refreshed by sponging them with water till they look clean and bright. Sometimes the roots in pots will become matted, and unable to receive a proper degree of moisture: this will be known by the sudden dropping off of the leaves and buds, while seeming to be in perfect health and beauty. The plant must then be repotted, pruned, and exposed to the hottest sun, but let the full blaze fall on the pot *alone*; the plant itself must be carefully shaded. This treatment will restore its health and strength. Stir the surface of the soil frequently, to prevent the growth of moss, and syringe them often in summer. Let me again recommend ladies to naturalize the camellia japonica, as I have described in a former paper. The beauty of their lawn or border will be so greatly added to by these rich shoots, that if they can possibly contrive the simple means of hardening them, they will never regret having done so; and thus a splendid plant, now little known except in greenhouses, will take its place among the varied beauties of our English homes. The frosts and chilling nights will soon be over, and then they may with safety be turned into the open ground, but place them in a dry, well drained situation, and screened as much as may be from cutting winds.

Our gardens are now daily growing brighter and sweeter; every bud, every flower, every sprig that clothes the boughs, utters a fresh word of praise and thankfulness. Let our hearts respond, and let us unweariedly declare, "as we lie down and rise up," and "as we walk by the way," the goodness and mercy of God.

HYBRIDIZING.

HYBRIDIZING is the name of that fascinating process by which we obtain new seedling plants from two distinct species of the same genus, or family, or from two varieties of a single species, by merely crossing the one with the other. We have thus three names, the A B C of the language of hybridizing, or cross breeding, and I may, thus early, state that naturalists, as well as the practitioners in this art, both in the animal and vegetable kingdoms, have by their writings and speculations rendered this most simple art a perfect Babel, and that by not first learning the A B C of the art. It is, therefore, most essential that the first three letters, or names, should be well understood on the threshold, otherwise on entering the temple we may easily be led away, like the rest, into endless confusion; for there have been as many theories, or rather hypotheses, broached on this subject as on the origin of evil.

A *genus*, a *species*, and a *variety*, are the A B C. The *genus* is the family, A; the *species*, B, are the different members of that family, and these members will only interbreed among themselves, and with the *varieties* C, which must have sprung from the species. In obedience to the divine command to

"increase and multiply," the different *species* of a *family* of plants, as well as the species in a given family of animals, are formed to breed with each other, under certain restrictions; some with more freedom than others, it is true, and some resist all advances in this direction. But for want of sufficient materials, or data, no theory can yet be constructed by which we could say beforehand that such and such species will cross; we must aim at this knowledge by actual experiments, step by step, and every reader of THE COTTAGE GARDENER may easily try an experiment, and even gain a step, and every step gained is a new fact; and we all know that it is from a multitude of well-attested facts that useful theory can be formed on any subject. Therefore, the more recruits that we can enlist into this experimental field, the sooner these facts will accumulate, on which to construct a sound theory that will assist the whole of us. The only absolute rule that we are yet in possession of, is the one I have referred to already—that plants or species will only intermingle with others of their own family. This is certain and settled. I may state, however, that many assertions to the contrary have been advanced, but they are all too apocryphal to require a passing thought. It is true that botanists and zoologists, in their respective spheres, have unavoidably classed many plants and animals in different families, to which they were not assigned "in the beginning," and many of these naturalists were at first very jealous of the cross-breeder's art, as it revealed in some instances the looseness of their classification, but all this misunderstanding has happily passed away, and now, if you can clearly prove that two plants will cross together, although they may have been placed in two different families in the arrangement of the greatest botanist, he will give way at once, and range these plants in one family. Therefore, in addition to the great interest attached to cross breeding, as a means of increasing the diversity of our flowers, it is a useful check on the labours of the botanist, by which he may clear doubtful points in his arrangement, or allow the gardener, or rather THE COTTAGE GARDENER, to do it for him.

Now, to attain to such distinction, we must clearly learn the meaning of our A B C; let us, therefore, for illustration, take the *genus* or *family* to which we ourselves belong. In every arrangement all *families* have a particular name to distinguish them from each other; and the name of our family is *mankind*. "In the beginning" there were only two species of this family or genus—Adam and Eve; although this definition will better illustrate my meaning, it is not strictly correct. Here, then, we have a genus and two species, but no variety, which is the only remaining letter in our alphabet. Now, when Cain and Abel were borne into the world, can you say whether or not they were two more species of the genus, or merely two varieties of it? On this simple question hinges all the learned disquisitions with which philosophers have allowed themselves to be led away into old *Chaos* again, on the subject of cross-breeding, both among animals and plants; and thousands of the unlearned have also followed in their path, some in one way and some in another; for, like other questions that can bear to be handled on all sides, this one has had many expounders, almost every one of whom either adopts a new phraseology of his own, or applies that of another in a different sense to the original meaning intended for it. Hence the Babel of unmeaning or misapplied terms in the language of cross-breeding; and hence, too, my reasons for advertising to these things, in order to guard my readers

against falling into these quicksands; for, without first explaining the terms which I mean to use in writing on this fascinating subject, and without shewing the reason why I make use of such terms in preference to others in current use, I cannot expect to make myself so clearly understood as I wish to be, in order to be really useful. I may premise, however, that I do not intend to enter on any of the abstruse points connected with the subject, but merely the simplest rules pointed out by actual experience; and, if I am so fortunate as to succeed in raising an interest on this very interesting topic among our readers, who may not yet have heard of such a process, sure I am that I shall be adding another strong link to that golden chain which already encircles their gardening resolves.

Now, whether we look on Cain and Abel as two varieties from two distinct species of the genus *mankind*, or as two legitimate *species*, it makes not the slightest difference. The world was peopled from this stock; and, of all the analogies that have been found to exist between plants and animals, none are more clear than this, namely, that whether we look on plants of one family as distinct species, like Adam and Eve, or as varieties, as we may call Cain and Abel, for argument sake, makes no difference in the process of cross-breeding; for, if they will cross at all, it will only be among themselves, for there is no obvious limit between a species and a variety in as far as cross-breeding is concerned. Here the grand analogy between plants and animals ceases. The family *mankind* has, in the lapse of ages, branched out into distinct sections, and every section into subordinate forms; so much so, that infidels have made a strong handle of this to cast discredit on the revealed word of God, who, for wise purposes, has so constituted this family that the most dissimilar members of the best marked sections of it will "increase and multiply" in obedience to His will. Not so plants, however; they, too, or, at least, many of them, have branched out into well-marked sections from original types, like the human race; but, in the majority of instances, plants thus far removed will not interbreed with each other, but only within their respective sections.

The offspring of a cross union among plants may be fertile, half fertile, or altogether quite sterile or barren; and, as far as we yet know, either of these conditions are not induced by the near or distant relationship in the parents; for every degree of relationship in the parents has been found to produce these effects in their offspring; so that any two kinds of plants may look as like each other as is possible without being absolutely the same plant, and an offspring from their union will as likely be barren as one produced from two plants which one could hardly think belonged to one family; so that we have no criterion in the outward aspect of plants by which we can pronounce beforehand whether they will cross with each other or not; or, if they do, what degree of fertility may be expected from their offspring.

Zoologists, starting from the well-known point of the cross between the horse and the ass, and at first believing the two parents to belong to different families, have admitted the possibility of union between the members of two different families, and that the offspring from such union would, in all cases, turn out to be sterile, as in the case of the Spanish mule; and, not only that, but even went so far as to call such offspring *mules*. Botanists, reasoning from analogy, unfortunately admitted the same views in the vegetable kingdom, and brought a world of confusion and uncertainty on themselves

and their followers in consequence. We are now only groping our way out of this darkness and confusion, but every season, and almost every experiment carried out according to natural laws, shews clearly that those views of naturalists are either untenable, or, at all events, require reconsideration. Therefore, knowing that plants the nearest in affinity may produce a barren or sterile offspring, as well as those the most distant, I shall give up the word *mule* altogether, as conveying no sensible meaning, or a falsehood. *Hybrid* and *cross-breed* I shall use as synonymous, although the two words have been used for two different degrees of crossing by the first authority. I shall so use them as meaning the same thing, because, after all, the difference is only in the words, not in what they represent. The simple act of crossing two plants together, any one, even a child, can learn in two minutes; and next week I shall begin with that process. D. BEATON.

TO CORRESPONDENTS.

. Several correspondents are obliged to remain unanswered until next week, from want of room.

PIGION'S DUNG (W. H. A.).—This is one of the richest of fertilizers, being nearly equal to the best guano, and it may be applied with advantage to all garden crops. It abounds with ammonia and phosphate of lime. If you use it for making liquid manure, you may employ half as much more than is directed for guano at p. 3 of the present volume; all that is there said relative to the employment of guano is applicable to pigeon's dung.

AGERATUM (Ibid.).—There is no plant known to us as *Ageratum grandifolium*. There are but six species—*angustifolium*, *carolinense*, *conyzoides*, *latifolium*, *menziesii*, and *strictum*; they are all annuals, all bloom in June and July, and all are white or blue; they are from a foot to a foot and a half high. The two first named are greenhouse annuals, the others are hardy. All, of course, are propagated by seed, but cuttings from them root freely. We suspect that your plant is not an *ageratum*, but a variety (grandifolium) of *Centotheca ageratoides*. If our suspicions are correct, it is a greenhouse herbaceous perennial, a native of New Spain; its flowers are sky-blue, and bloom in August; its greatest height one foot, and it is propagated by cuttings.

NAMES OF PLANTS (J. N. B.).—The white flower we think is *Arabis alpina*, and the yellow flower *Alyssum saxatile*, but from such small specimens it is difficult to be sure of the trivial names. **(A. D. L.).**—Your plant is *Boronia serrulata*, a greenhouse evergreen shrub from New South Wales. It requires the pot to be very thoroughly drained, and, consequently, the pot should be larger than is usual for a plant of its size; the soil should be sandy peat, mixed with some rubbly charcoal. It is the want of good drainage, and, probably, keeping the air of your greenhouse too moist, that makes the leaves of your *Boronia* spotted. **(A Subscriber, Sarbiton).**—The plant from the meadows in your neighbourhood is *Orethys maritima*.

PIT WITHIN A GREENHOUSE (F. W. H.).—You propose to fill with bark or earth a pit along the front within your greenhouse, to strike cuttings in, the hot water pipes running within the pit. This plan will not answer at all for striking cuttings, nor will it do as a sand bed, the pipes cannot safely be heated but in the dead of winter, and need to exclude frost. Introducing hot bark would only spoil your greenhouse plants, and the space is far too narrow to hold bark enough to retain sufficient heat for ten days.

MOVING VINES IN POTS (Ibid.).—Vines in pots may be removed and planted any time in the year. From May to Midsummer is the best time, and they take no hurt if their stems are 16 inches from the pipes. We know of many not further from the pipes; those in the Queen's new garden, for instance.

GREENHOUSE ADJOINING A PARLOUR (T. Pielon).—Your greenhouse, six feet wide, has no room for a front shelf, but only for the usual one sloping to the wall in the centre. The friend who tells you that plants next the glass "take no harm" is the best gardener of the two; but, after all, your other friend carries the day, as you have no room next the glass.

BAROMETRICAL TABLE (Meteorologist).—We have the offer of more than one, and at the commencement of our next volume, shall probably add to our table of temperatures.

HONEY-SUCKLE (Mary Marshall).—This planted at the foot of an apple-tree certainly will not prevent the latter bearing fruit. This is not "a silly question" to ask, for there are antipathies as well as "Loves of the Plants." Some plants will not grow well near others, and another set will only grow in their company. The corn-flower, for instance, is only seen among wheat. This arises, probably, from the secretions from the roots or leaves of the latter being favourable to the growth of the flower.

ANACARDIUM (Ibid.).—If this is the common sort, by all means turn it out into the open ground. An old *Fyrus Japonica* and *Morella* cherry-tree had better be merely unloaded from the wall about to be rebuilt.

CORRECTION (Ibid.).—You do not mention the name of the species, but, whatever it is, a cutting of a well-ripened shoot, planted in a pot

of damp sand under a bell-glass, without any heat, will strike root. The best mode of propagating the best kinds is by inarching them upon a stock of one of the commoner kinds. Your large specimen will not endure the cold of our winter in the open ground, but your Almond will, if of the common kind. We shall give an extract from your note in our next.

FRAME PLANTS TURNING YELLOW (W. S.).—The Convolvulus, Zinnia, &c., thus affected, after being raised in a hotbed, are suffering from the cold winds we have had. They will soon recover.

TRANSPLANTING SEEDLINGS (Ibid.).—You ask for the best mode of moving seedlings raised in pots, in soil half mould and half sand, but which do not transplant singly; the mould is so loose that they fall to pieces and are destroyed.—Lift them carefully with a flat stick, and pot them singly, or three together, in a small pot. Put them into the frame, and keep it close for a week.

PASTURE FLOWER (Ibid.).—This was cut down in the winter, and continues green, "but without buds or leaves."—Put in into a close frame, and it will soon show both.

BEES (G. W. Pretty).—Your letter has not been printed, but it shall be in our next double Number, with a short comment by Mr. Payne.

CABBAGES AFTER POTATOES (G. M. G.).—To obtain cabbage plants to insert in the bed whence you will take your "Shaw potatoes," we suppose in August, you must sow now; prick out the seedlings when they have two leaves each an inch broad.

VEGETABLE MARROW (Ibid.).—We strongly recommend every one who has a garden to grow this or some other compound of moderate size when ripe. It is an admirable store vegetable, of the greatest service to boil and serve at table, either whole or mashed. Mr. Cut-hill's mode of growing it, as a successional crop, after early potatoes, is very good; he sows the seeds of the marrow in a row about the 1st of May in a warm corner. When transplanting comes, the early potatoes will not be near ripe, but lift a root of potatoes every five or six feet in the rows, leaving six or eight rows of potatoes, and then another row of marrows; when ripe store them away for use. Those who have not yet sown peapump seed may yet have the plants sufficiently forward by sowing in pots of very rich earth, or earth mixed with thoroughly decayed dung, keeping the pots in a warm greenhouse or room of the dwelling, and supplying the plants regularly and liberally with water.

ACTINIS-PLANTED POTATOES (X. Y.).—The stems of your potatoes, planted in November and January, were "cut off by the frost." Never mind; do not do anything, but loosen the surface with a hoe between the rows. The stems will all come again, and when you take up your crop you will be able to laugh at "the old staggers," who say you are now laughing at you.

CUCUMBER MILDEW (Rev. A. Stead).—The whitish spots which attack your neighbour's cucumber leaves, and gradually spread over them, is the mildew. Your description of it, as seen through your microscope, is quite correct. It has the appearance of very fine white cotton, interspersed with straight silver lines, headed by a transparent globular cap, or head. It is a minute fungus, closely allied to that we described at p. 53. It is most probably *Nectotheca rosea* (which is really a species of *Dactylium*), but it may be either *Oidium erysipheoides* or *O. leucotum*, both of which Mr. Berkeley believes to be species of the genus *Erysiphe*. But whatever the species may be it is a fungus, and the remedy is to dust the leaves with flowers of sulphur.

CHICKASO SEED (A. C. Nottingham).—You can obtain this of any seedsman who advertises in our columns.

NETTLES (Rev. F. G. K.).—The only remedy we know is to cut them down close to the turf; then to pare this off, and to cover over the roots of the nettles to the depth of half an inch with common salt; then put back the turf so that the salt may dissolve gradually. Your turf over the salt will be killed, but this can be easily replaced when the salt is all gone.

ASPARAGUS (A. C.).—Covering your asparagus bed with salt in January was decidedly wrong; the best time for applying it is now. (See p. 113, Vol. I.). If you put the salt on very thick in the winter, when frost and snow were prevalent, you probably caused so low a temperature to the plants as to kill them. Mixing salt and frozen water together causes one of the lowest degrees of cold known. However, asparagus is very hardy about this year, and your plants may have vegetated after you wrote.

CLIMBER FOR LATTICE WORK (T. J. Cross).—No plant will answer so well for the work to act as a screen all the year, as Irish ivy, especially as it will be partly shaded by the lilac before it.

FLOWERS IN TOWN GARDENS (Eneus).—The double daisy will succeed in London garden, but not the pansy; at least, not to grow it to perfection. They will require no winter shelter.

MANURE FOR DAHLIAS (Ibid.).—Thoroughly decayed stable manure and leaf-mould, in equal parts, are we have found the best for these flowers. The best liquid-manure for them is made from guano, or pigeon's dung. Half an ounce of sulphate of ammonia to a gallon of water may be used once in ten days to dahlias. It should not be given until the flowers begin to appear.

STEMS OF WHITE LILY (Ibid.).—These, which you say are broken off by accident, will not grow.—You can try cutting them into three-inch lengths, and burying these an inch below the surface, keeping them well supplied with water. We do not believe they will emit roots, but let us know the result.

ASSES OF CIGARS AND TOBACCO (Ibid.).—These contain sulphate of potash, muriate of potash, and phosphate of lime; therefore, in small quantities, probably would be useful as a fertilizer. We know of no experiments made with them.

RASPBERRIES (A. A. Clericus).—Your raspberries have thrown up many suckers all round them, and you wish to know what you should do with these. Dig them all up except three closest to each of the present stools—these three to be preserved for bearing next year—and one sucker further off from each stool, to be removed in October, when you are making your new plantation.

MEMPHIS INSIGNIS (A. Subcricus, Wigtonshire).—This has blue flowers. The species which has white flowers, spotted with crimson, or rather purple, must have been either *Nemophila utamarua* or *maculata*. You may get these from the florists who advertise in our columns.

REBARS GATHERING (Gardener).—The best mode is to remove a little of the earth from round the bottom of the leaf-stalks, and then slip it off from the crown without using a knife.

ARTEMISA EXIMUM (S.).—This is the name of your plant, which you correctly state to be a native of the Cape of Good Hope. If you can obtain seed from it, you must raise seedlings in a gentle hotbed, and grow the plants in your window.

QUEEN OF THE PRAIRIE (Ibid.).—This is a hardy hybrid climbing rose, having flowers rosy red, striped with white. If you thin out the branches very much in the autumn, topping them, you will grow, and reduce the roots at potting time, so as always to keep it growing in a 12-inch pot, you will probably be able to cultivate it in your window. But we hope Mr. Beaton will say something before long about the culture of roses in pots, and he will then not forget the example set by the Yellow Bankian rose in a pot at the Chiswick Show.

DESTROYING BIRDS (Ibid.).—We shrink from all recommendations as to the modes of taking away life from animals, and prefer, ourselves, to scare birds away. Thanks for your beautiful little book, "Birds' Nests and Birds;" it deserves to be sown over the land, and its price, twopenny, cannot prevent its general diffusion.

BEANS—MAGNOLIA FALLAX (G. M. G.).—You say that "a hole is bored in the case (cayx) of the bean-blossom, causing both the flower and bean to drop off."—Some weevil may do this, but we never knew an instance of the kind. When we have observed beans shed their blossoms, it has always been from the want of water to the roots.

WOODEN (ISTERN) GARDENER.—Paint it within and outside with gas tar, boiling, and mixed with a little fat.

BEAN—MAGNOLIA FALLAX (G. M. G.).—You say that "a hole is bored in the case (cayx) of the bean-blossom, causing both the flower and bean to drop off."—Some weevil may do this, but we never knew an instance of the kind. When we have observed beans shed their blossoms, it has always been from the want of water to the roots.

POTATOES CUT OFF BY FROST (Ibid.).—This having happened two or three times, your sets "now have tillered out from five to fifteen shoots each."—This is a bad symptom, and is ominous of a poor crop, from exhaustion in the sets. If the case was ours, we should thin these multitudinous stems to one or two to each set; after doing so, hoeing the surface of the ground between the rows, but not earthing them up. Please to let us know the result.

POULTRY (A. Constant Reader).—These may be kept in your yard 40 feet square, and you cannot do better than have half turfed and the remainder gravelled. Some sand must also be in one corner where they can burrow. We prefer the Dorking as good layers; but all your questions will be considered when we can find some one to write about poultry keeping.

VINE BLEEDING (G. J. H.).—One of the main branches being broken, you are unable to stop the bleeding, which is so profuse as to water the ground beneath. We never knew the following plan fail:—Cut the face of the wound smooth, and apply a thick plate of iron, heated intensely red hot, until that face is completely made black. In short, is reduced to charcoal; then immediately rub in very hard a salve, previously ready, made of two parts tallow and one part fresh quicklime.

CYCLAMENS AFTER FLOWERING (Clericus, Beds.).—Mr. Beaton's directions to the farmer, in our columns to-day, are exactly applicable to your case.

ORANGE-TREES (T. Griffin).—The insect on your orange and lemon-trees, having a tortoise-shaped shell or covering, is one of the scale tribe, and is either *Coccus hesperidum*, or *Coccus testudin*. They will be destroyed by holding the trees for five minutes in water heated to 140°.

MICE (G. F. C.).—You will keep mice from your sweet peas by covering the surface beneath which they are sown with fine coal-ashes, an inch deep.

CHISWICK SHOW (S. W. Ubridge).—We are obliged by your note. You approve of our former Supplements because they "add to the amount of information cottagers and gardeners wish to obtain," but you object to the last Supplement because unsuited to their sphere and requirements; and you tell us that it is not a satisfactory reply that it is optional with any subscriber to take it or to reject it. Now, as it is so printed as not to be paged with the volume, we think that reply closes to you, but you are quite right in supposing that we have other reasons for printing our last Supplement. First, among these, and contrary to your opinion, we wished to report to our friends, the cottage gardeners, what the best horticulturists of England can do in gardening suitable to their sphere; for, with comparatively insignificant titles, we have seen some of our English gardeners, furnishing data, as being the present perfection of cultivation, from which we may mark future improvements; and we think the humble efforts of our readers may usefully employ themselves in this direction. It is only fair to ourselves to add that a sale of many more than we ever hoped to dispose of would be required to repay our outlay on this Supplement, yet we purpose repeating such a Supplement annually, unless our readers generally object; but giving our reports of the other two shows of the Horticultural Society gratuitously to our readers. We shall give lists of the principal winning plants at the Chiswick and Regent's Park Shows in our next.

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WEEKLY CALENDAR.

M	W	D	MAY 31—JUNE 6, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
31	Th.		Four-spotted Dragon-fly.	Yellow Martagon Lily.	51 a. 3	3 a. 8	1 44	9	2 40	151
1	F.		Nicomede. Botau. Soc. Meeting.	Yellow Rose.	51	5	2 8	10	2 31	152
2	S.		Virginian Spider-wort flowers.	Pimpernel.	50	6	2 32	11	2 22	153
3	SUN.		TRINITY S. Common Red Poppy flowers.	Provence Rose.	49	7	2 57	12	2 13	154
4	M.		Spotted Fly-catcher lays.	Indian Pink. (Rose.	48	8	3 25	13	2 3	155
5	Tu.		K. HANOV. B. 1771. Lion. & Bot. Soc. Meet.	Three-leaved China	47	9	rises	14	1 53	156
6	W.		Landrail first heard.	Common Pink.	47	10	8 a. 26	15	1 42	157

NICOMEDE was a Christian who suffered martyrdom at Rome during the persecution under the Emperor Domitian. He is believed to have been a disciple of St. Peter, and to have suffered death on account of his strenuous efforts to protect his brethren of the same faith. We can discern no good reason why his name has been retained in the reformed calendar in preference to others now omitted.

PIMPERNEL.—In Dr. Jenner's well known enumeration of the natural indications of rain approaching, is included this flower:—

"The walls are damp; the ditches smell;
Closed is the pink-eyed pimpernel."

And so certain an indication is it of wet weather being at hand, if the flowers of this plant (*Anagallis arvensis*) are still shut some hours after sun-rise, or if they close in the day after having opened, that it is called "the poor man's weather-glass." There are several other flowers equally sensitive to the presence of great moisture in the air. The common daisy is a familiar instance; for, at the approach of rain, every one of their white stars will be found closed, of the thousands which may expand and spangle a field or lawn when the weather promises fair. To these may be added the field bind-weed (*Convolvulus arvensis*), small Cape marigold (*Centaurea pluvialis*), purple sandwort (*Arenaria rubra*), and chickweed or stitchwort (*Stellaria media*). If the African marigold (*Tagetes erecta*) remains closed after seven in the morning, rain will speedily fall; but a still more curious phenomenon is said to be shewn by the Siberian snow-thistle (*Sonchus sibiricus*), for if it shuts at night the following day will be fine, but if at night it remains open the day ensuing will be cloudy and rainy.

PHENOMENA OF THE SEASON.—If there is any truth in the old adage,

"A cold May and a windy,
Makes the barn fat and fudy,"

we shall have a piteous harvest this year, for an unreasonable reduction of temperature and high winds have characterized the month now closed. On one of its days we observed a large earth-worm rush forth from its hole in a lawn, evincing the greatest agony by its contortions; and we expected to witness another struggle between this worm and a centipede, but we found its assailant was a wireworm. This comparatively small creature continued shifting and refixing its fangs into the flesh of the worm with a ferocity and tenacity that were really painful to witness, and a severe pinch was required to compel it to loosen from its hold. We were not aware, before, that the wireworm preyed upon anything but the roots of vegetables. In this season, so characterized by flowers, the most beautiful phenomena of the year, we may appropriately offer some popular explanations of their parts and uses. Flowers—that is, the organs of fruitfulness—are absolutely necessary, and are always producible by garden plants properly cultivated. Plants may be delicate in leaves, or stems, or roots, because other organs may supply their places; but plants are never incapable of bearing flowers and seeds, if without these they can never fully attain the object of their creation—the increase of their species. Every flower is composed of one or more of the following parts, viz., the *calyx*, which is usually green, and enveloping the flower whilst in the bud; the *corolla*, or *petals*, leaves so beautifully coloured, and so delicate in most flowers; the *stamens* or male portion of the flower, secreting the *pollen* or impregnating powder; the *pistil* or female portion, impregnable by the pollen, and rendering fertile the seeds; and, lastly, the *pericarp* or seed-vessel. In succeeding numbers we shall remark more fully on all these parts of a flower.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
31 Highest & lowest temp.	Fine. 78°—49°	Fine. 73°—41°	Rain. 67°—54°	Cloudy. 61°—42°	Fine. 69°—43°	Fine. 81°—46°	Fine. 86°—46°	Showery. 66°—41°
1	Fine. 78°—47°	Fine. 76°—56°	Showery. 67°—51°	Fine. 72°—44°	Fine. 72°—43°	Fine. 79°—46°	Fine. 79°—45°	Cloudy. 66°—44°
2	Fine. 75°—53°	Fine. 73°—41°	Rain. 66°—52°	Cloudy. 61°—41°	Fine. 81°—46°	Fine. 82°—43°	Fine. 78°—51°	Showery. 66°—49°
3	Fine. 73°—41°	Fine. 76°—42°	Cloudy. 68°—43°	Fine. 69°—41°	Fine. 81°—44°	Fine. 85°—45°	Fine. 77°—42°	Cloudy. 65°—40°
4	Fine. 72°—46°	Fine. 80°—48°	Showery. 68°—38°	Showery. 70°—40°	Showery. 70°—40°	Fine. 84°—49°	Fine. 77°—56°	Showery. 65°—47°
5	Fine. 73°—46°	Stormy. 86°—48°	Showery. 68°—39°	Showery. 79°—53°	Showery. 68°—42°	Showery. 84°—49°	Fine. 65°—48°	Fine. 70°—46°
6	Cloudy. 59°—40°	Fine. 82°—41°	Showery. 66°—43°	Showery. 70°—53°	Cloudy. 67°—56°	Fine. 86°—53°	Cloudy. 64°—36°	Cloudy. 73°—46°



INSECTS.—No insect is more insidious or more sweeping in the destruction it brings upon some of the farmers and gardeners crops than the Turnip Flea (*Halticæ nemorum*). Turnips of all kinds, beet-root, mangold-wurzel, rutabagas, and flax, are all liable to be destroyed by this insect; and it is only one instance of many of the weakness of man when opposed to the apparently insignificant natural agents with which God works, that, despite the indefatigably applied skill and labour of the cultivator, this minute insect will often rob him of £100,000 worth of turnips in a single county in one year. It is another singular misapprehension of terms, on which we lately commented, that this insect is known among cultivators of the soil as the black fly and the turnip fly, but none of them ever call it a beetle, which it really is; and the most descriptive name is the Turnip Flea-beetle, for this describes not only its real nature but its favourite food, and its extraordinary power of skipping or leaping like the common flea. This insect is represented in our drawing of its natural size and magnified. The body, one-eighth of an inch long, is rather flattened, and of a brassy black colour, thickly dotted; the wing cases are greenish-black, with a pale-yellow broad line on each; the base of the feelers (antennæ) and the legs are pale clay-coloured. The eggs are laid on the under side of the rough leaf of the turnip

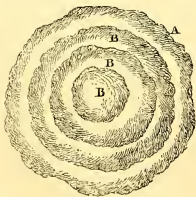
from April to September; they hatch in two days. Their maggots live between the two skins or cuticles of the rough leaf, and arrive at maturity in sixteen days. The chrysalis is buried just beneath the surface of the earth, where it remains about a fortnight. The beetles are torpid through the winter, and revive in the spring, when they destroy the two first or seed leaves of the young turnip. There are five or six broods in a season. These insects are most to be feared in fine seasons. Heavy rains, cold springs, and long droughts, destroy them. Their scent is very perfect: the beetles against the wind, and are attracted from a distance. The rapid growth of the plant is the best security against them: to secure which, sow plenty of seed all of the same age. Burning the surface of the land is beneficial, by destroying the chrysalides. Deep digging is an excellent practice, when the chrysalides are in the soil. Drilling is a far superior practice to sowing the seed broadcast. Destroy charlock, it affords support to the beetles before the turnips come up. The most effectual basishment of the turnip fly, we think, is secured by sowing the surface of the soil with gas-lime two or three mornings after the turnips have been sown. This is so effective to the insect as to drive it away just at the time the young plants are appearing above ground.

* Flydy, full.


To us it is a matter of no small surprise that a subject so curious as THE VINEGAR PLANT has not gained more attention from naturalists. Whatever its nature—whether plant or no plant—it is quite certain, from letters and samples which we have received, that very excellent vinegar is, and for years past has been, most economically made by its agency, in an unusually short space of time, in many places as widely separated as are the counties of Durham, Staffordshire, Northamptonshire, and Kent. Yet no one has taken the trouble to examine the relative facts to which we now invite more attention.

We cannot better introduce the subject than by printing the two following letters—the first from a highly respectable tradesman at Walsall, and the second from a gardener of no mean attainments:—

"I see, by two of the last Numbers of your COTTAGE GARDENER, that you have inquiries made by correspondents concerning the vinegar plant. I have one in my possession, and there are several more in this town (Walsall). I should wish, for the information of your readers, to give you a description of it, but it is almost beyond my skill—it must be seen to be believed. Talk of a *plant*! Nonsense. It has neither root, stem, branch, or leaf. You will say, 'what is it like, then?' Why, it is like 'nothing in heaven above, in the earth beneath, or in the waters under the earth;' 'none but itself can be its parallel.' Some one says, 'comparisons are odious;' but we shall see. Figure to yourself the garbage of a codfish; or, what will be nearer the mark, take the stomach of a pig (the hodge, we Walsallians call it), cut it open, empty it, but don't wash the slime off; cut a piece the size of a middling-sized pancake, and then you will have the nearest resemblance in the world to a *vinegar plant*. It is 'neither fish, fowl, flesh, nor good red herring,' and I hardly think it is a vegetable, but I should like your opinion on that head. It is wonderful to see a *thing* like this live and produce its kind, and live without air, too. I will endeavour to give some further idea of its form: it is about as round and as thick as you would expect to see a pancake. This sketch represents the



underside of the *plant*. A is the parent, B B B are young ones forming. They all grow solid together till they are ready to work for themselves, and they then part very easily. My *plant* is not half an inch thick in the centre, where you may say there are four. Now for a word about *cultivation*. Take a jar of what size you like, and to one gallon of water add $\frac{1}{4}$ of a pound of coarse sugar, and the same weight of treacle. Set your *plant* on this, mind, for if it

sinks it will perish; but, to make sure, it should have a small wooden raft, made of deal, in this form, , to float on; it wants no more care. Tie a piece of brown paper over the jar, and set it in a warm room, and in a month's time in summer, two months in winter, you will have the best and sharpest vinegar, that can be had for all domestic purposes, for about six-pence per gallon. Farewell to crowslip, gooseberry, and all the rest of vinegars. There is none so good as this. I don't know what may come to pass, but I think it is time to look out for a *Brandy Plant*."

The next letter is from Mr. J. L. Middlemiss, gardener to A. Pole, Esq., of Benthall Hill, Tonbridge Wells. He says—

"As Mr. Reid has not stated how the vinegar plant is to be obtained, and as some of your readers may like to know, I here send you an account of the manner in which one may be *made*. Take $\frac{1}{2}$ lb of sugar and $\frac{1}{2}$ lb of treacle, simmer them in three quarts of water till dissolved, then put the mixture in a large basin or jar, cover it over, and set it in some warm corner; in about six weeks look at it, and a thick, tough, fleshy substance will be found floating on the top, which is the vinegar plant. Take it and put it on the mixture as recommended by Mr. Reid. The first mixture will turn to vinegar, but it will not be so good as it would be with a "plant" put on it at first. The young plant, which will be found adhering to the old one, is, as I suppose, the scum arising from the fermentation of the mixture, and in this way thousands of plants might be made, and as many hogs-heads of very good vinegar. I was rather puzzled about the vinegar plant, and had one sent to me from Northamptonshire, with strict injunctions to take great care of it, or it would die; but upon examination I thought one might be *made*, and the above is the result of my experiments. I may add that the vinegar is better if bottled and kept for some time."

So far, then, the question is set at rest, that the vinegar plant is no importation from Italy, as is stated by the only publication (*The Gardener's Journal*) in which we could find it noticed. But the question still remains—is it a plant? and if a plant, of what kind?

Since we last wrote, a correspondent has obligingly sent us one, and we can bear testimony to the accuracy of the description of its appearance in the two preceding letters. It closely resembles a piece of tripe, without any appearance of mouldiness; when its substance is cut through, each surface exhibits a very distinctly marked epidermis, or skin, and the intermediate portion is pulpy, not unlike very thick paste, such as is made for adhesive purposes. We have submitted both the skin and the pulp to inspection under a very powerful microscope, and could detect numerous pores throughout their substance, but nothing of a vascular system. The same may be observed in some of the lowest species of fungi, and to this lowest order of vegetables we believe it will be found to belong.

Not a single product of the vegetable world capable of fermentation, or putrefaction, but is the birth-

place of some fungus; which fungus is the most powerful agent in effecting those changes. It is sufficient to specify the blue mould of cheese, the bead mould on preserves, the white mould of our ink, and the leathery crust on the grounds in our beer-casks. These are all distinct forms or species of fungus, and they all produce crops of stems and seeds, which the microscope reveals to us in those minute down-like coverings on their surfaces. But every fungus does not produce these crops, for many of them spread out in the form of minute fibres when excluded from the sun and air, in the manner so familiar to us in mushroom spawn, and in those minute cob-web-like films so common over the walls of our wine-cellar. These are merely the spawn of various kinds of fungi, which are believed never to arrive at a state in which they produce seed, but go on vegetating, forming thick masses, and throwing out offsets capable of reproduction in a similar mode. Even the yeast with which the fermentation in our breweries and bakehouses is promoted is believed by some naturalists to be the result of a fungus vegetation; and we shall conclude with a quotation relative to this subject from Dr. Carpenter's excellent volume on "Vegetable Physiology and Botany":—"Another very curious example of vegetation of a

fungus character, in a situation where its existence was not until recently suspected, is presented in the process of fermentation. It appears from microscopic examination of a mass of yeast, that it consists of a number of minute disconnected vesicles, which closely resemble those of the Red Snow, and appear to constitute one of the simplest possible forms of vegetation. These, like seeds, may remain for almost any length of time inactive, without losing their vitality; and their power of growing, when placed in proper circumstances, is not destroyed by their being entirely dried up, nor by their being exposed to such extremes of temperature, as the boiling point of water and 108 degrees below its freezing point. When these bodies are placed in a fluid in which any kind of sugary matter is contained, they commence vegetating actively, provided the temperature be sufficiently high; and the decomposition which they effect in the fluid is that which constitutes its *fermentation*.

"If a small portion of a fermenting fluid be examined at intervals with a powerful microscope, it is observed that each of the little vesicles it contained puts forth one or more prolongations or buds, which in time become new vesicles like their parents; these, again, perform the same process; so that, within a few hours, the single vesicles have developed themselves into rows of four, five, or six, thus:—



a, single vesicles; b, vesicles, with buds; c and d, the same, more advanced.

This is not the only way, however, in which they multiply; for, sometimes the vesicles are observed to burst, and to emit minute little grains, which are the germs of new plants, and which soon develop themselves into additional cells."

The chief phenomena attendant upon fermenta-

tion, whether it terminates in the formation of spirit or vinegar—the production of carbonic acid gas—is such as attends upon the vegetation of fungi; for these, unlike other vegetables, give out that gas during their growth.

THE FRUIT-GARDEN.

ANOMALOUS POSITION OF FRUIT-TREES.—After such a fearful period of starving weather and severe frosts as we experienced through the greater part of April and into the beginning of May, it may well be expected that our fruits in general must be flung out of their usual condition, and that peculiar means must be taken to restore the breach made by such an untoward season. We have gardened in various parts of the kingdom for some thirty-five years, but never before did we experience such April frosts. We have, in consequence, put our fruit trees of all descriptions under a severe scrutiny, in order to see what measures are necessary to adopt to restore the balance, and ensure fruitfulness in the ensuing year, for we must not be cast down; "none but the brave deserve success," to use an old saying applied to other affairs.

The elaboration, or, in plainer words, the formation of the next year's blossom, is chiefly performed by the first developed leaves of the spring; such are in

many cases destroyed or seriously injured, especially on the apricot, and some tender pears.

Now, the most ordinary observer must have learned to distinguish between late made shoots, commonly termed "midsummer shoots," and the wood of the early spring, which assumes betimes a more lusty appearance, and acquires very soon after midsummer a brownish tint, the mere consequence of early elaboration of the sap. Nobody expects fruitfulness from the watery shoots made after midsummer; such shoots are in, what we term, "an anomalous position;" that is, are flung out, of course. To be sure, they are not productive of serious injury *immediately* to the very constitution of the tree, since trees of all kinds produce such in the order of nature; but this they do, they prevent a concentration of the elaborated sap, on which fruitfulness depends; they are robbers, and, what is more, they shade and incline to barrenness the more mature branches.

Another point—in tender sorts of fruits, such mid-

summer shoots obstruct the ripening of the wood: now this is a point of so much importance in all dwarfing systems, that it shall be our constant aim to keep it continually before the readers of *THE COTTAGE GARDENER*. Some persons may think that to hardy fruits the question is immaterial; but we say that it is *most material to all fruits* that are in a course of training, and has more to do with economy of space ultimately than many persons are aware of; to say nothing, for the present, of the fruitfulness of the trees.

INSECTS.—Such being the case, therefore, it becomes all parties at the present crisis to do all they can to secure the welfare of the earliest formed leaves, or what remains of them. To accomplish this, we recommend universal diligence in hand picking, in order to rescue such foliage from the depredations of caterpillars and various insects, which are sure to infest them. It is now time to make diligent search, and this must not be done heedlessly. We have known apricot trees in which nearly the whole of the leaves were infested with caterpillars; and we have seen clumsy or heedless pickers tear off the leaves by wholesale, in order to accomplish that great desideratum with the idler or loungers, "the saving of trouble." These leaves, then, be it known, need not by any means be destroyed during the operation; a little ordinary care will uncoil them, and expose the intruder to the fate he deserves. Care must be taken that all those caterpillars which fall to the ground during the operation be destroyed before they crawl away, which they will shortly do if left awhile. Our remarks here apply to the apricot, a fruit so valuable that it is scarcely possible to take too much pains with it in this respect; for, as before observed, everything depends on the preservation of the foliage as to the production of blossom for the ensuing season.

A similar process must be observed with regard to pears, and indeed all our fine fruits in a trained state: apportioning the amount of attention to the degree of importance they possess. As to apples, and the ordinary fruit trees, they will require some further directions, and to such we will shortly attend.

BREAST WOOD.—This is a technical term given in common to the side sprays, or lateral shoots, springing from the principal leaders, whether young or old. These are at all times tolerably numerous, provided the trees be in a healthy state; but this season they will be unusually abundant, in consequence of the small amount of fruit, and the check which the earlier formed wood has received. The management of this will require special directions adapted to each mode of training, and we will make a point of saying something every calendar for a few weeks on this head, taking hold of the subject according to the order in which the operation should be performed. For the present we merely offer remarks of a generalized character.

It will be obvious, on the slightest consideration of the subject, that it will be absolutely impossible to tie down or nail *all* the shoots which spring in trained trees; the whole tree would speedily become confusion, and light would be so much obstructed, that general barrenness would be the sure result. Again, it is well known that very severe disbudbing is prejudicial to fruit trees if performed at once, and that all operations of this character must be performed by instalments. These two points being fixed in the mind, it is very easy to systematise the rest of the proceedings, for the only two questions that occur will be—How many of these shoots do I wish retained ultimately? and how many will it be expedient to *totally*

disbud? This settled in the mind, the sooner a small portion is removed the better; and in performing this operation, any of a doubtful character may have their points pinched off; indeed, it is not amiss to go over and pinch the *mere point* off most of those shoots which have to be cut away finally; however, our remarks here are, as we observed before, only general; some exceptions will be necessary in the finer fruits, together with a somewhat more cautious mode of procedure, of which we must shortly.

RASPBERRIES.—We adverted to the propriety of thinning out the suckers, in *THE COTTAGE GARDENER* for May 3rd. As the season has been so very backward, the operation will be thrown much later in most places. Raspberry suckers have at all times a tendency to travel away from the original stool or parent plant. This is inconvenient, as tending to break up that systematic equality in point of distance, (and, by consequence, free admission of light and air,) on which the flavour and size of the fruit so much depends. Let, therefore, those suckers be selected for the future crop which spring tolerably close to the parent stool, choosing those as bearers for the next year which are strong, but not gross; all the rest may be cut away or pulled up by the root, except where young suckers are required for a new plantation in the ensuing season, when, of course, an extra portion must be left. About four or five are amply sufficient for the next year's crop, independent of new plantations. Those who want large raspberries for exhibition purposes should at this period disbud a few canes of the Fastolf or other approved kinds. On looking over the canes, many inferior blooming sprouts will be found, which merely serve to obstruct light from the superior shoots: such may be at once rubbed away. One half of those sprouts which usually spring from the old cane will suffice for a nice sprinkling for exhibition purposes. When the fruit is swelling, some liquid manure should be applied; and to grow exhibition fruit, a couple of suckers only to each stool should be left.

STRAWBERRIES.—Those who desire clean fruit should take care to place some material under the blossoms, or swelling fruit, forthwith. We use clean and new straw. The plantation should be thoroughly cleared of all weeds previously. We have before adverted to watering; we again repeat, that no fruit is more benefited by watering during the swelling process than the strawberry: of course this has been attended to before now. Let us advise our friends to persist, when necessary, until the moment that the first strawberry in the garden begins to turn colour, when the water-pot must at once be laid aside.

R. ENNINGTON.

THE FLOWER-GARDEN.

PILLAR ROSES.—Agreeably to the intimation given in the last number, we now proceed to give lists of the best kinds for the purpose, naming a sufficient number of each class, so that our readers may have plenty to choose from, however large their gardens may be. As most nurserymen keep these now in pots, they can be had at any time of the year, and removed with perfect safety: the only care in planting being to break the pots gently, and give a good watering at the time, repeating it frequently during dry weather.

Though there are several vigorous growing roses amongst the Provence, Damask, and French kinds, yet they are scarcely fit for training up pillars; we

shall, therefore, select from the Hybrid-China, Noisette, and Bourbon varieties, together with Bour-sault, Ayrshire, Hybrid-Perpetuals, Hybrid-Bourbons, and Noisettes; all of which contain some excellent kinds, well adapted for pillars.

HYBRIDS OF CHINESE, BOURBON, AND NOISSETTE ROSES.—Belle Marie, superb rose, fine form, large and full. Cheneclode, light vivid crimson, very large and double. Duke of Devonshire, rosy lilac, striped with white, large and double. La Superbe, bright rose, large and very double. Lord John Russell, rose, brilliant, showy, large and double. Magna Rosa, light blush, often tinged with pink, very large and very double. Petit Pierre, bright rosy violet, very large and double. Richelieu (Verdier's), splendid, lilac, large, and full. Tippoo Sahib, rosy carmine, large, and very double. Vulcan, brilliant crimson, and full rose.

BOURBON ROSE.—Amadis or Crimson, deep purplish crimson, large, and semi-double.

This variety, having strong vigorous shoots, is one of the very best to form a pillar of roses; it frequently has shoots six or seven feet long, which the following summer break at nearly every bud, and are covered with flowers all their length. They should be suffered to hang loosely, in order to display all their beauty.

AYRSHIRE.—Dundas Rambler, white, edges pink, numerous small flowers, and double. Miller's Climber, bright purple, semi-double.

HYBRID CLIMBING ROSE.—The Garland, nanken and pink, changing to white, very showy, semi-double.

We referred to an example of this rose in our last week's number.

HYBRID PERPETUAL.—The strong vigorous growers of this class of roses are excellent for pillars, and have the advantage of blooming through the autumn months. On that account we advise the greater number of roses for this purpose to be selected from the following names:—

Gloire de Rosemane, brilliant carmine, showy, large, and semi-double. Earl Talbot, deep rose, very large and full. Jacques Ladite, cherry crimson, edges paler, large and full. Lady Sefton, glossy lilac, bluish, very large, and double. Louis Buonaparte, vermillion, glowing, very large and full. Madame Pepin, beautiful pale rose, the outside of the petals white, large and full. Reine de la Guillotiere, dark crimson, edges red, large and full. Earl of Derby, pale rose, large and full, curious foliage. Olivier de Serres, deep rose, large and full, also curious foliage.

BOURBON ROSES are peculiarly autumn roses: they are also free and constant bloomers, with fine foliage, bright colours, and in general finely shaped flowers.

Acedale, bluish white, superb, large and full. Cardinal Feschi, fine violet-crimson, distinct and full. De Lamartine, fine bright pink, very large. La Grenadier, bright crimson, tinged with purple, glowing, and double. Madame Deprez, superb rosy lilac, clustering, large and full. Preludes de Charpenne, white, centre rosy, large, and very double, in clusters. Souvenir de la Malmaison, clear flesh, edges bluish, very large, and full. Triomphe de Plantier, rosy crimson, large, and very double.

NOISSETTE ROSES.—These bloom generally in large clusters throughout the summer and autumn. They are free growers, and fragrant.

Cerise, rosy purple, sometimes cherry, large and double. Clara Wendel, pale yellow, large and full. Eclair de Jupiter, bright crimson-scarlet, large and double. Creditors, pale flesh, large and full. Vitellina, white, centre flesh and yellow, very large and full.

We have now accomplished our pleasant task of selecting from large numbers such kinds of roses as we know to be most suitable for the various purposes to which they can be applied. We have endeavoured to select perfectly hardy varieties, and of as varied characters of form and colour as possible. The culture of this emphatically and justly styled "Queen of Flowers" has been progressing in this country for years, and has now reached a degree of perfection that our forefathers never dreamt of. Have we reached the ultimatum in form, in colour, in fragrance? We trow not. We say, then, to such of our readers as have time, means, and opportunity, try to raise seedlings; and, in order to do so with some prospect of success, use the same means as are adopted in raising improved varieties of other florist

flowers. We will, in a future number, try to point out the most likely method to accomplish so desirable an end.

RUSTIC BASKETS AND VASES.—In flower-garden scenes it is sometimes desirable, in order to create a variety, to adopt various modes and objects to attain such a varied appearance as will produce effects agreeable to the eye and taste. A cheap way to accomplish this is to place rustic baskets in proper situations, filled with rich light earth ready to receive suitable plants. Those baskets are easily made; any moderately ingenious carpenter may form them. Having fixed on the sizes you wish for, procure some inch boards, either of sound oak, which is the best, or of well-seasoned elm or deal. Cut them into the proper lengths, and nail them together the right width—they will then form a square. Now, we think the best form is a circle, though the octagon is nearly as handsome. Mark, then, the desired form on this square, and, with the proper kind of saw, cut it into the desired figure. When this is done, you have, as it were, the ground work of your basket, or baskets, made. The next thing is to fix upon the depth—this requires some consideration. If too deep, the basket will be a great weight, and look clumsy; and, if too shallow, there will be too little earth for the plants to flourish in, so as to produce healthy foliage and plenty of flowers. Now, the extremes, we should say, are twelve inches, which is too deep, and four inches, which is too shallow. Take, then, the medium between the two, and make the depth eight inches, and you will be right. But what size shall we advise? In truth we had nearly forgotten that. Well, we say the size depends on circumstances and situation. If your garden is moderately extensive, you may have them what we consider the largest size to be manageable, that is, from three to five feet in diameter. If a small garden, this size would be inconvenient, and take up too much room. Yet there is no reason why you should not have two or three of those ornaments. For such a garden, the most proper dimensions would be two feet; and, for that size, six inches deep would be proportionate. Having, then, fixed upon the proper size, and cut them to it, proceed to nail to the circular or octagon bottom the sides. If the shape is round, let the pieces of wood to form the sides be narrow, bevel inwards the sides, and shape them so as to form the circle; but, if of an octagon form, the pieces will be, of course, of the width of each of the eight sides, and planed to fit at each corner. Fasten them firmly together with nails, and the main foundation and walls of your baskets are complete. But they want something more to give them an ornamental, finished appearance. On the top of the side put some split hazel rods of sufficient thickness to cover it, and hang over the outside edge about half an inch. Place some of the same kind close to the bottom; then, between the two, cover the plain boards with one of the two things we shall now mention. The first and cheapest is some rough oak or elm bark, so closely fitted as to give the idea that the basket has been cut out of a solid tree. The next is more expensive and troublesome, but certainly more ornamental. It is split or whole (as you may fancy) hazel rods, formed into a diamond, circle, or any other tasty forms. These should fit so close as to completely hide the material of which the sides are formed. The bark plan will not require anything more doing to it after it is neatly fitted, and securely nailed to the sides, but the hazel rods should have a coating of boiled linseed oil applied.

This will preserve them, and give a polished surface very ornamental. In those rustic baskets a great number of suitable plants may be grown; and while our readers are making them and preparing them to receive such plants, we will prepare a list of them, which shall appear in an early Number.

PLANTING OUT.—As the weather is now happily become milder, and we hope the warm genial gales of summer have steadily set in, we may safely plant out verbenas, petunias, fuchsias, dahlias, lobelias, roses (China, from pots), gaidardias, salvias, anatheras, calceolarias, geraniums, hardy and half-hardy annuals, &c. All these may now be safely planted out, especially in the more southern counties. Perhaps, in the northern parts, such as, for instance, Yorkshire, Durham, and Northumberland, it may be advisable to delay a week or a fortnight longer before the more tender things, such as dahlias and geraniums, are finally and fairly planted out, and fully exposed to the weather.

DAHLIAS.—Prick out seedlings in pots, four in each, and keep them under protection a fortnight longer. All things intended for planting out should be exposed to the full influence of sun, air, and rain, every day, and night, too, when warm and mild.

NEATNESS.—Continue to keep everything neat and clean. The lawn should be rolled and mown now at least once a fortnight. Hoe the flower-beds frequently, whether weeds appear or not, as the operation benefits the plants greatly. Stick sweet peas with neat twiggy branches of the hazel, and tie up diligently all flowers as they advance in growth and require it.

FLORISTS' FLOWERS.

PINKS.—These pretty, fragrant flowers will be shooting up their flower stalks, and should have supports put to them in time. Sticks made of double plasterers' laths, and painted green to imitate the colour of the flower-stems, are the best. We trust our former instructions of having them ready made have been acted upon; if not, lose no time in getting them ready. Tie sleekly, so as to allow for growth. Now is the time to *pipe* pinks. The term pipe is only another word for a cutting. We suppose the term has been adopted from the resemblance of the flower stalk to a tobacco pipe. Some persons pull off the pipings from the plant, and stick them in without more ado, but this is a slovenly way; besides, in pulling off the pipings the main stem of the plant is materially injured—nay, often destroyed. The more correct way is, with a sharp knife, to take the cuttings off close to the stem, without injuring it, leaving a sufficient number of shoots to preserve the health of the plants. Take off one kind at once, making the proper number or tally at the same time; then dress the pipings by cutting off the lower leaves, leaving about four at the top. Those leaves should not be mutilated or shortened, as they are the organs to send down sap to form the roots. Put them in pots filled with light earth, and a covering of sand upon it. Place them in a frame with a little bottom-heat, watering gently when dry, and shading from the sun until they are rooted.

T. APLEY.

GREENHOUSE AND WINDOW GARDENING.

VIOLETS.—About the end of May or very early in June is a good time to prepare double violets to flower next winter and spring; that is, on the sup-

position that old plants of them are at hand. It is always easier to get good stout flowering plants of violets by dividing the old ones, than rearing young ones from the side runners; but when we are short of plants, and wish to enlarge our stock, recourse must be had to runners as well as to dividing old plants. They are fond of rich, friable, loamy soil, and, before dividing the old plants, this soil should be well dug, and some very rotten dung added to it, and also any stones or rough clods that may turn up should be raked off; but the soil is not improved by raking it too fine, and there are many kinds of good soil that will form a hard crust on the surface after rain, if raked very fine. When all this is ready, take up the old violets and shake all the soil from their roots, and divide each of them into four, five, or six pieces, according to the size of the old ones, preserving as many of the roots to each piece as you can, and cutting off the young runners; for they do more harm than good if left on. But you may as well stick them in, in some shady place; as cuttings, they will come in useful some time, if only to give away. Every one who has a plot of garden ground should possess a planting trowel, and that is the best tool to set these violets with; make the holes large enough, so that the roots are not doubled in, and let them be nine or ten inches apart every way, as that will be room enough for such plants as are to be taken up in the autumn for potting; but such as are intended to flower in the bed must have more room. But I am supposed to know nothing of out-door work, and if they catch me about flower beds I shall be rapped on the knuckles, although Mr. Errington threatens to come inside my greenhouses with his sprawling vines, where, if I catch him, he shall have a good sousing with the syringe; for vines, though their produce is the best and most wholesome of all our fruits, are sad neighbours to geraniums, heaths, and all the other fine plants in the greenhouse. When all the violets are planted, give the bed a good heavy watering with a rose pot to settle the soil about the roots; and, if the weather is very sunny, some boughs or other kind of shading would be very useful for the first ten days, till the roots have taken a firm hold of the ground. Whatever kind of summer weather we have, these violet-beds should not go long without water; and, in very hot weather, they should be watered late in the evening, and always with a rose pot, so that they may have a good refreshing shower each time; and, if some water is poured all round the outsides of the bed, all the better: for it will cause that damp cool atmosphere which is so grateful to most plants in hot sultry weather. By and by, a host of runners will begin to grow, after the fashion of the strawberry, but they must all be cut off as often as they show themselves outside the leaves of the mother plants; and, by that plan, all the strength and substance of the plants will be saved to the benefit of the flowers. Of course, no weeds will be allowed to rob the bed; and, if ever it becomes hard on the surface, let it be stirred as soon as it is a little dry: but Mr. Barnes has so often showed the great benefit of stirring the surface soil, that no reader of THE COTTAGE GARDENER can ever forget that essential part of the management. In every little thing of this sort there used to be some secret in carrying out plans for the better management of plants, and in this among the rest; but the turning point, or chief secret in preparing violets for potting, is to keep them free from runners; and the next point is to keep them in an active state of growth through the whole season, not to let them droop and languish in hot weather one

week for want of water, and half drown them the next; for, of all plants, the violet is the first to suffer from gardening by fits and starts. It is so peculiarly liable to the attacks of the red spider in summer, that any neglect on the part of the owner is a sure opportunity for the red spider. Indeed, in very dry summers, violets on light porous land can hardly be kept free from this enemy by the closest attention; and it would be an excellent plan to cover the beds all over with moss, as Mr. Appleby recommends for his American and other plants. Any time from the beginning to the middle of September will do to take up the violets to pot; and all that is necessary then is to be careful not to pull the roots about, or otherwise injure them; to use good drainage and rich light mould; to put them aside in some shady place till they recover the check; and when they are brought in doors, either in a room or greenhouse, to keep them as cool as possible for the first three weeks, or until flower-buds appear. After being so highly cultivated all the summer, they are now so "full of blood," (as gardeners say, when a plant is in high condition) and so excitable, that a close warm place at first would start them afresh to grow leaves and runners instead of flowers. Some of the plants may be left in the bed, and may be potted any time through the winter with almost equal advantage, only that they will not come in so early. I have, more than once, gone to a bed of tree violets in bud about the middle of January, when the weather was too cold for them to open their flowers—took up a lot of them, and, after potting them, put them into the greenhouse, and in ten days or a fortnight afterwards had them in full bloom, fit to stand on the drawing-room table. For pot culture, I always prefer the tree violet to all others; it is so easily managed, and will bloom naturally from August to May, with a little, but very little, encouragement during the cold winter months. Now, recollect, there is no time to be lost if you wish to excel in violets; and, let me tell you, there are many gardeners among us who find it hard to come up to their cottage neighbours in growing them; and it will be poor consolation next winter to say, "I wish I had taken Mr. Beaton's advice last summer about these violets."

GREENHOUSE.—All the strong, coarse growing plants, such as agapanthus, myrtles, hydrangias, and the like, should be out of doors by this time, and none but the choicest plants allowed to stand now in the greenhouse, and those should be kept well apart from one another, so that they have room to grow in all directions. But as we know very well that they *will* not grow in all directions, but only in one direction towards the sunny side of the house, they must, therefore, be frequently moved round to get them to grow properly. Heaths, epacris, and many other hard and soft wooded plants, are very apt at this time to get long straggling growths, but all such ought to be nipped when they advance more than a few inches without making side shoots, and this stopping system to be persevered in for the next two months. Those extraordinary and most beautiful plants the *China azaleas*, of which so much is said in the "supplement" to THE COTTAGE GARDENER, should not be "stopped" like other woody plants. They, like the camellias, make their annual growth in a few weeks, and they begin by pushing out whorls of little shoots all round where the flowers were, and unless one of these here and there shows a disposition to outgrow the rest, there will be no need of stopping; but after they are just gone out of flower, every plant ought to be looked over, and all

the very weakly shoots cut out, or, where they are too crowded, they must be thinned, and the whole bush trimmed to a nice regular form, but no more pruning, and hardly any stopping, for the rest of the season. So that they are not at all difficult to attend to; and when I saw them at the Horticultural Society's Show the other day, I was ready to undergo a severe penance for not having recommended them more strongly than I am in the habit of doing, when I know the sorts to be very useful. I shall never forget what I once heard a child say of them—he was such a good looking boy, about seven or eight years of age; and, on entering the conservatory, he stood looking at them as if amazed for a few seconds, and when told the name of them, he raised his dear little hands, and exclaimed, "Oh mamma, mamma! if I had a garden I should like it to be all planted with azaleas!" I have often remarked that the first impression on a child, on first seeing a new flower, was a good criterion of its excellence; and I have more than once put a flower in one hand and a piece of money in the other, then offered both to a babe, but I never recollect an instance in which the infant did not first grasp at the flower, so that, if we were without a Bible, an infant at the breast could tell us, in language not to be mistaken, that the author of our being has implanted in us a love of his glorious works in preference to the grosser elements of this world. Therefore, let all little boys and girls be encouraged to admire flowers, and also be taught to look on them carefully, but not to touch them; and if any one is so naughty as to break flowers or plants, D. Beaton would be very sorry to hear of it.

CINERARIAS.—These are now over for the season, or very nearly so, and should not be left one moment in the greenhouse after they have done flowering, for many of them are sure to be infected, more or less, with green or black flies, to which the family is very subject. In addition to what I have already said respecting these useful plants, all that I have to say at present is this, that I have followed up the annual improvement in them hitherto by a few purchases of the best sorts every season, and that I have also raised a quantity of them every season from seeds; that I have found the seedlings by far the easiest to manage; and that most people, not imbued with the high notions of practical florists—I wish I could say the scientific rules of a florist—admired some of my own seedlings as highly as those kinds for which 3s 6d, 7s 6d, and even 10s 6d, were asked. Not being a fancier, I never would pay more than 3s 6d for the best which I was ambitious to possess. But I was once nipped, after all my cunning. Having ordered half a dozen from an unpriiced list, when the invoice arrived there were more than one set down to the tune of 7s 6d: this I could not gainsay, for I ordered the plants by name, without first asking the price; but the dealer knew for years how far I was willing to pay for cinerarias, therefore I thought he would not send me any beyond my standard price. However, knowing more of the world than I did, he, no doubt, did it for my good, and as a warning not to order things till I was sure of the selling price. If so, it had the desired effect, for I have not bought one these three years; therefore, on the whole, my worthy employer is a gainer by the transaction, and I am now enabled to state that any one who admires cinerarias for their varied and brightly colours, and is not over fastidious either about their sizes and shapes, or their novelty, may satisfy himself with a sixpenny packet of seeds of them from any respectable dealer, for he could

hardly fail to get some gay-coloured ones amongst them, and by saving his own seeds in future, and only gathering it from those flowers he most admires, he may easily keep himself in good stock of them for the rest of his life. I may also mention that I have resolved on treating two-thirds of my stock of cinerarias as annuals, that is, raising so many of them every year from seeds, instead of propagating any but the very best sorts, for many of them are so debilitated from one cause or another, that it is an uphill work to increase them in quantity by the usual modes of cutting and dividing the old plants.

HYBRIDIZING.—In the introductory remarks on this subject, at page 90, we have seen that one family of mammals, (as naturalists term all animals that suckle their young,) have sprung from two individuals; and that during successive generations the present characters, constitutions, and habits of the different races of the human family were stamped on them by local circumstances and other causes. Some of the most eminent naturalists believe that all the other animals have, in like manner, branched out from a few original types; and, like man himself, owe their present conditions to the influence of climates and various causes. And it is as firmly believed by others that the different races, or families, of plants have had a similar origin, that is to say, have passed into those endless variations, for which they are now so conspicuous, from a few original types. When we see that we ourselves are permitted to add new forms to those already in existence, by the means pointed out to us by the light of science, or rather by the Hand that made them, we may well pause before we can gainsay or dissent from these views. But whether these ideas be right or otherwise, they will not much affect the views of cross-breeding, which I wish to explain to the uninitiated by referring to them. All that I want to explain is, that plants are divided by nature into families, many of which, like the human family, have assumed different aspects in different countries and localities from their progenitors; but that no outward appearance will warrant us beforehand to say whether or not the different members of any one family will interbreed with each other. All that we are certain of is—and that is not yet fully admitted by some—that no plant, and probably no animal, is allowed to cross with another plant or animal not originally of the same stock or type; and that all the cases that have been advanced to the contrary by different naturalists are only so many verdicts against their own classifications. It is true that many analogies can be traced between the animal and vegetable kingdoms; and I am persuaded, from what little acquaintance I have with the subject, that all the confusion which now exists, as to the powers and effects of cross-breeding, both in the animal and vegetable kingdoms, have arisen, and are perpetuated, from the fact that naturalists have drawn their conclusions on these matters more from these analogies than from actual facts. I am, also, equally satisfied that, among plants at least, all the facts that we have yet ascertained respecting the power of cross-breeding in any family are little better than blind guides in assisting us to experiment on the members of a different family; and, therefore, that every step in the progress of cross-breeding must be arrived at by actual experiments rather than by the closest analogies; and that any reader of THE COTTAGE GARDENER is as likely to arrive at a just conclusion, step by step, in any family of plants, as the most consummate philosopher. Let us, therefore,

take up the subject with the two-fold view of increasing the gaiety of our window favourites, and of recording facts from which, at some future period, a correct theory of cross-breeding may be constructed.

To understand the simple process of fertilising, or, as we may call it, crossing one flower with the dust of another, it is necessary to understand the different parts of a flower. If we look at a geranium flower, for instance, we see some flowers open and some in bud; those in bud are enclosed in a green covering, and only the tips of the flower leaves peeping out at the point: that covering is the first part of a flower, and is called the *calyx*, a word of Greek origin, signifying a cover, so it is very easy to remember. Some people call this "the flower-cup," but it is more of a saucer than a cup, and we of THE COTTAGE GARDENER will take things in their right meaning, and call the calyx a saucer, and the flower a cup, because the flower when wide open sits in the calyx like a tea-cup in its saucer. Now, take one of these wide open flowers of that same geranium, and inside, in the middle of it, you will see a lot of reddish oblong bodies, called *anthers*, all held up at different lengths on the top of whitish threads, called *filaments*, from *filum*, the Latin for a thread. These anthers open with two slits on one side when they are quite ripe, and a yellow dust is seen inside these openings; this dust is called *pollen*, and is the most wonderful thing in the economy of the vegetable kingdom. The dust, or pollen, is finer than the finest flour, and yet a good magnifying glass will shew that it consists of many small particles of different forms, but always of the same form in the same plant. You would probably think I was drawing on the imagination if I were to say that one of these anthers contained more than a thousand grains of pollen;—what shall we say, then, when it is clearly made out that a thousand multiplied by ten thousand, and that ten times over, would come nearer the truth? Each individual grain out of these numberless thousands is endowed with a power that can produce the largest oak tree in England. The bee gathers this pollen from the flowers, and is the yellow balls you see them carrying into the hive on their hind legs; and if we could make a calculation of the number of pollen grains a single bee could gather in one day, I should not be surprised if it should turn out that the whole would exceed that which could originate a forest larger than any we have in this country. The pollen, therefore, is the father of all plants and trees. Each pollen grain contains matter smaller than pollen, and is the substance which is the fecundating principle in the vegetable kingdom. In the very centre of the same geranium flower we have been looking at, you will see one little thread called a *style*, coming up by itself, and when it is ripe it divides at the top into five little horns. These little horns are the *stigma*, and this stigma in each flower is the mother of all seeds it produces. It is of different forms in different plants, but by its style it is in all cases found to be attached to the little nursery where the seeds come to maturity, or, in other words, to the seed vessel. Thousands of conjectures are afloat as to how the pollen fertilizes the seeds; but philosophers are loath to admit anything they cannot well explain, and they have been puzzling their heads for an age to account for this simple process; so simple, indeed, that a child can understand it, if he is first told that a circulation of the juices of all plants, and in all parts of a plant, is constantly going on, and more so when they are in a growing state; part of this circulation goes on

between the embryo seeds in the seed-vessel, and the stigma through the style, and when the pollen grains burst by the swelling caused by being moistened with the viscid matter on the stigma, the fecundating principle is carried up or down, according to the position of the style to the seeds, and thus fertilization takes place. Therefore, all that we have to do is to dust the stigma with the pollen when both are ripe for the operation, and seeds of the same kind will follow in due time; but when we wish to have a cross-bred plant from the union of two distinct parents, the pollen bags or anthers must be cut out from the one that is to bear the seed, and the stranger pollen used in its stead.

D. BEATON.

THE KITCHEN-GARDEN.

ASPARAGUS.—Notwithstanding the late abundance of rain, this excellent vegetable should at this season be assisted in every possible manner by the application of liquid-manure, which, as we have before observed, will, if applied in gloomy and showery weather, have a much more beneficial effect not only on asparagus, but on all growing crops, whether of the garden or the field, than when the soil is dry and arid from the continuance of fine weather. Liquid-manure circulates to a greater extent, and soaks in with far greater expedition to the extreme points of the fibrous roots, when the soil is moistened and softened by damp or rain; and may, at such times, be given in smaller quantities, and a much greater degree of strength. The advantage of the application of liquid-manure to growing crops may very readily be tested by any one who has a row of cabbages, cauliflowers, asparagus, or any other vegetable, even in the short space of 24 hours, by applying a moderate soaking of manure to one part, and leaving the other untouched. A great difference, both in colour and luxuriance, will very soon be perceptible. No matter what kind of liquid-manure may be applied, all will benefit something. The urine from the stable, cow-house, or piggy; soap-suds and slops of every kind from the dwelling; and where all these can be conveyed into one receptacle, and there mixed together, so much greater will be the benefit. Those who have land, and are without such convenient receptacle, may brew liquid-manure, and apply it with much greater economy than they can purchase solid manures, to apply when digging or trenching the soil, if they will take 3 lbs. of guano, 2 lbs. of salt, and 1 lb. of soot, mixing them together with one hoghead of water; and, if the weather be cloudy or showery at the time of its application, this manure will require no more diluting; but if the soil is dry and the atmosphere clear, it should either be well washed in, or diluted, before application, with double the quantity of water. All through the spring, summer, and autumn months, we constantly apply to all kind of kitchen-garden produce liquid-manure, brewed in the same way from night-soil, the excrement of animals or poultry, and soot. The latter is one of the best fertilizers for asparagus; and with a little salt also added, is most beneficial not only to that vegetable, but to *sea-kale* and all the brassica (cabbage) family.

CUCUMBERS.—Plants, which have for some time had leading shoots, should have these thinned pretty freely by degrees, until the clearest and strongest vine alone is left. The whole of the surface soil should be gently stirred over, and a liberal soaking of manure applied; and when this is well soaked into the bed, it

should be covered over to the depth of two or three inches with good fresh open well pulverized soil. Those on the out-door ridges should have the soil well stirred around them, and be at once mulched for the vine to run on.

MELONS.—Those that are set and swelling will be improved by liberal applications of liquid-manure, until nearly full grown, when it must be withheld, and abundance of air admitted, to secure a superior flavour. The sulphur and lime in the inside of the frames must not be forgotten.

ROUTINE WORK.—Plant out in succession the crops of *cauliflowers* and *Cape broccoli*, and sow again; prepare the ground for the main crops of *celery*; and, between the peas and beans, plant out such crops as *broccoli*, *borecole*, *Brussels sprouts*, *savoy*, and *celeriac*; keep up a succession of *lettuce* by sowing in drills, and thinning out to transplant, if required. *Endive* should now be sown, and *leeks* transplanted. Dwarf *kidney beans* and *runners* should be planted in succession, and the hoe and scarifier kept well to work amongst growing crops of all kinds.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

ALLOTMENT GARDENING FOR JUNE.

If our previous advice has been carefully followed out, most of the cottagers' crops will be above ground by the time this reaches them. The next grand point is high cultivation, requiring, of course, unwearying diligence. One of the principal points in a good course of culture is to suit the process to the weather: this, indeed, may be called the fundamental maxim. We will venture to say that a cottager who carefully attends to this course will accomplish as much in one week during overhours as an inconsiderate man will do in two, taking the season all round.

WEEDING.—In the culture of drill crops, it is well to seize on the first dry period, as soon as a small crop of weeds can be discerned, and run the hoe through between the drills, in order to enable the cottager's wife or children to weed the drills without mischief. The weeds in a day or two will be so far slain as to enable them to see the drill crops distinctly. The first hoeing through, provided the soil is light, and in very fine tilt, may be performed with the Dutch hoe; few ordinary allotments, however, we fear, will be under so high a course of culture as to permit its use. We do not recommend the Dutch hoe on the score of its utility in the culture of the soil, but as merely facilitating processes which at this busy period might otherwise get in arrears; for we consider the ordinary draw hoe far superior as to the mechanical effects produced on the soil. After the lines or drills are weeded, it is excellent culture to run the small hoe through the plants; this should be done when the soil is in a mellow state, as the soil is thus rendered more crumbly, and, of course, more open to the action of the air, dew, and rain. It also becomes a worse conductor of heat, and, therefore, the plants are less liable to be affected by sudden droughts. As soon as these things are accomplished, the cottager may turn to his bed crops, and proceed with thinning and weeding, and the application of occasional doses of liquid manure to crops dependent on very high culture for their profit.

INSECTS.—Whilst all this is proceeding, a very

watchful eye must be kept on the depredations of insects of all kinds, especially the *common slug*. The damage done by these nightly depredators is enormous. It would not be too much, we think, to affirm that one-eighth of the produce of allotment or cottage gardens is annually wasted by the common slug; and he should, therefore, be regarded as a national enemy, and no pains considered too great to prevent his ravages. Indeed, we should aim at nothing short of extermination; and were a regular system of linaing carried on (with judgment in its application) for a couple of years, we are persuaded that the trouble would be amply repaid. The common slug is a great pest to the young carrot above all the garden crops; and, as this useful vegetable has acquired double the amount of importance it formerly possessed, through the precarious position of the potato, every pains should be taken to secure a good stock for the winter. As before observed, lime fresh slaked is a powerful agent, both to hold the slugs in check, and to destroy them if fairly brought in contact with it: still much depends on watching the movements of the slug. Everybody knows that they commit the greatest havoc after a dry period, if mild rains occur. Occasions like these should, therefore, be seized, and the lime, being in readiness, should be applied in the evening just before the arrival of night. Such applications should be repeated at times on likely occasions—the cottager's lads or lasses could soon be taught to manage these small matters. Ordinary cinder-ashes, with the mere dust riddled out, may be occasionally sprinkled over the beds; this prevents slugs travelling, and we have used new sawdust as a temporary expedient. Much, indeed, may be accomplished by hand picking,—on a dewy evening hundreds may be gathered by the cottier's children. Whilst making remarks on this marauder of the allotment garden, we must not forget the *turnip fly* or *flea*. This little rogue is but too well known by his ravages. In turnip sowing we know of no better maxim than to divide the amount of seed to be sown into two portions, and to soak one half in warm water for six or eight hours previously to sowing. After soaking thus long, the water must be strained off, and the seed spread on a dish to dry slightly before sowing, for it necessarily becomes overcharged with moisture. It may lay thus for a day or two in some cold room, taking care to sow it just before the sprout appears. By this course at least two chances are established. The soaked seed will appear full a week before the other; and, if it stand in defiance of the fly, the other half (which we ought to have said must be mixed with it at the time of sowing, and which comes up later) may be cut away with the hoe: the mere loss of a little seed is as nothing in comparison of the value of certainty in the crop. We lay, however, the utmost stress on the use of a small amount of highly stimulating manure; and, above all, as we observed in our last allotment paper, on good Peruvian guano.

TURNIPS.—The main points in turnip culture, as to the securing of a crop, are, we conceive, to watch carefully the period of sowing, and so to prepare the soil that the young plant may spring forth with the utmost rapidity. As to the former point, we would rather keep the seed in the bag, and sow a fortnight later, than commit it to soil containing just moisture enough to sprout the seed, but not sufficient to maintain the young and tender plant through a period of drought. We are also strong advocates of firm rolling, where soils are of a porous character. Whilst

speaking of turnips, we would direct the attention of cottagers to such sorts as *Dale's Hybrid*, and the *Yellow Bullock*. It is well known that to obtain the Swede in perfection a much earlier sowing than with the ordinary white kinds is necessary. It happens, nevertheless, with the cottager, that he has not at all times ground to spare during the month of May for some Swedes. Under some rotations, however, spare plots come to hand during the month of June; and, as this is too late to sow Swedes with any prospect of a bulky crop, it becomes a consideration what kind to choose. Now, the Dale's hybrid is apparently a cross between some white turnip, and the Swede, and combines the keeping properties of the latter with the rapid growth of the former, consequently is peculiarly adapted for the cottager to sow in June; for he must strain every nerve to obtain keeping store roots, more especially if he keep a cow or pigs. The Yellow Bullock is also a good sound turnip, and adapted for June sowing: when it is desirable to sow turnips in July, or the early part of August, then we recommend the *Early Stone* or the *Dutch*. To wind up this consideration of the turnip, if your soil is good, and rather loamy, and you can obtain nice Swede plants, and the weather is favourable, you may plant Swedes; but in other cases, and especially during the end of June and through July, it will perhaps be better policy to sow the before-named kinds.

PEAS.—We need scarcely offer remarks about sticking, &c., such will be accomplished as a matter of course. Towards the end of the month some of the peas will begin to overhang the sticks, and when a sufficient crop is set, the tops of such should be pinched off, in order to swell off the pods, and to ensure an early removal from the ground, for we must have a crop of green-kale, or other of the green tribe, off this pea ground when they are removed.

BEANS.—About the beginning of June, the earliest beans will be in full blossom. As soon as a good crop is set the tops may be pinched off. This, as in the case of peas, will hasten the swelling of the pods, and get the ground clear betimes for some cole worts in August. Topping, also, frequently preserves the crop from the fly, for after the top is pinched off these destructive pests are not quite so much at home, and the pods swell much more freely. Let the succession crops of beans be well soiled according to former advice, taking care to press it close to their stems; let them also be topped in due succession, or, at least, as soon as a crop is well set.

SCARLET RUNNERS.—Watch this useful vegetable carefully; the slugs are apt to make sad havoc with them. Hand picking must be had recourse to in such a case. Let them be staked betimes, or strings put to them. It ought to be more generally known that excellent crops may be obtained with very low sticks, or, indeed, without any, by stopping or pinching them betimes, and by continuing such stopping at intervals. The true secret of success with the runner is to provide rich soil, to stop frequently, and to water in dry weather, taking care, also, to pick all overgrown pods clear away at every gathering, unless it be a few for seed. The pigs will consume those which are getting too ripe.

CARROTS.—The horn-carrots, if sown according to our advice in the beginning of February, will soon be fit for use, for they may be drawn when about the size of the vent peg of a beer tub, and in that state are excellent to assist in thickening the cottagers' soups; for, in boiling them with a piece of bacon, they will partially go to pieces in the soup: they

will, moreover, prove an excellent substitute for the potato. These carrots will stand as close together in the first thinning as two inches; and by commencing to pull them at the above size, a most astonishing amount of produce may be obtained from a very moderate-sized bed, proving a source both of profit and convenience, for a bunch may be pulled almost every day after the end of May.

LARGE KINDS OF CARROT.—These will now be coming up, and, if in drills, must receive the kind of culture suggested at the beginning of this paper. The plants may be thinned *slightly* at first, merely singling, but finally to about five inches apart if in beds, and to four if in drills. Be sure to keep down weeds, and to watch for slugs.

PARSNIPS.—Similar culture to the large carrots, only they must be allowed an inch or two more room. The final thinning, however, must not take place until the plant is eight or nine inches high; the thinnings then will be very useful for the pig.

MANGOLD.—The mangold will now be fairly above ground, and will want weeding and "singling." The latter signifies the first thinning out, which consists in merely removing a plant where two stand close together. In the next thinning they may be "set out" at their final distances—about eight or nine inches apart in the drill; this thinning must not be performed until the plant is out of danger—say five inches in height.

SWEDE TURNIPS.—Those sown in drills recently will now be up. Here, again, the same principles must be pursued as with the other drill crops. Thorough weeding after hoeing through between the drills, and singling or thinning out, must be attended to.

SWEDE SEED-BED.—Those who desire to have stout plants of the Swede must, above all things, keep the seed-bed clean weeded from the very first. When the plants are beginning to grow rather tall or gross, we generally pass a scythe lightly over them, just cutting off the points of the leaves. This, by letting light and air amongst the stems, strengthens the plants, and renders them better able to withstand a period of drought, or intense light when transplanted.

VARIOUS GREENS IN SEED-BED.—Clean weeding is here as necessary as in the case of the Swedes. It is necessary also to thin them out a little if they come very thick, providing enough plants are left for use. Those who wish to have very forward plants of a particularly strong character, should prick them out on rich soil betimes. Indeed, it is well thus to transplant all of this family, if time permit, when they are growing very fast, and the plot for which they are intended is not ready for them.

ONIONS.—Let them be clean weeded, but not hoed through, unless in drills, and then the hoe should not go so close to them as to loosen the bulb. The grub is the great enemy to be dreaded. We have found it a good plan to save soap-suds betimes, putting them into anything that will hold them: in a few weeks they will become stale and very nauseous, and in this state we water the onion beds with them about twice a week. This we have found a preventive, as the fly, which is the parent of the grub, does not seem to take to them under such circumstances. Chamber ley, too, might be kept for this purpose until stale, and one quart added to each gallon of soap-suds; we would then add one gallon of water to a gallon of the mixture. As soon as watered, it would be worth while to dust either soot or lime, separately, lightly over them: this would adhere

to the plants. The whole will prove at least a manuring.

LETUCES.—These require a great deal of water, to have them large, as the season advances. The cottager need sow no more until the beginning of July, as they run to seed, and are not worth their land in the heat of summer.

DUTCH TURNIPS, if sown in the beginning of March, will soon be fit for use. As soon as large enough, they may be drawn up, their tops cut off, and, being piled in a heap in a cool, shady place, some damp soil may be beat over them. These will last the cottager's wife for a couple of months, and the ground will be at liberty for other crops.

SPINACH.—This will soon begin to run up to seed; in this state it may be pulled up root and branch, and given to the pigs. It will be found a good preventive of costiveness, to which pigs are sometimes liable when confined in a small sty, and fed on heating diet. The cow will also eat it greedily.

Having thus glanced at most of the cottager's crops in succession, we must now see what may be sown or planted, and cast our eyes over the divisions in our diagram, page 184, in No. 1. The *potatoes* will all be up: we advise the free use of the hoe, stirring the soil deep, especially in the centres between the rows. When these potatoes are planted a considerable distance apart, some cottagers introduce *green-kale* between them thinly. To accomplish this, however, the rows should be nearly thirty inches apart, or much confusion occurs in getting up the potatoes. This is a course we have not advised with the winter potato, as it involves the loss of several rows of potatoes, which are the cottager's chief dependence. If, however, the disease should unfortunately appear earlier than usual, it will be well to plant through between them immediately with the green-kale, the *thousand-headed cabbage*, or the *Brussels sprouts*; or those who are very anxious for keeping roots may try Swedes, but the latter will be most likely to become choked with the potato haulm.

SPARE GROUND.—Any spare ground which may come to hand during the month may be most advantageously employed by sowing a bed of *horn carrots*. We would particularly advise this, for the other crops may suffer from the grub; and, if these miss, some coleworts may be planted on the bed, without digging, in August.

CABBAGE OR COLEWORTS.—A bed of these must, by all means, be sown about the middle of June, not later. These we consider *very* important, for we shall show, in July, how some hundreds may be introduced amongst or around other crops. The best kind for this purpose, with which we are acquainted, is the *Matchless*; but any of the compact early heading kinds of the *Early York* character will answer. Not less than one ounce of seed should be sown at this period.

About *celery*, *cucumbers*, *leeks*, &c., we need say little here; plenty of sound advice adapted to the cottager may be found in the kitchen-garden department of this work. We may, therefore, merely conclude this paper by strongly urging on the cottager the immense advantage to be derived from high cultivation, and a freedom from weeds. Let the cottager be firmly persuaded that every stroke with the hoe in his garden will be attended with a corresponding amount of profit, none the less certain although prospective.

THE BEE-KEEPER'S CALENDAR.—JUNE.

By J. H. Pague, Esq., Author of "The Bee-Keeper's Guide," &c.

It frequently happens, where bees are managed upon the depriving system, that, for want of timely room and ventilation being given, a swarm comes off from the stock-hive, leaving the bell-glass or small hive which has been placed upon it in an unfinished state. Now, whenever this happens, let the swarm be hived into "The Improved Cottage Hive," and the bell-glass or small hive, with the adapter, immediately removed from the stock-hive and placed upon the newly-hived swarm; and, as soon as the bees are a little settled (say in 15 minutes), remove the newly-hived swarm to the place in which it is intended to remain, care being taken to fasten down the straw cover upon the parent hive; for no further profit can be expected from it beyond a second, and, perhaps, a third swarm, which are almost sure to follow. In this method of immediately removing a swarm to the apiary, Gellien agrees with me, and for which he gives the following reasons:—"Most people who have bees allow their swarms to remain till the evening in the place where they have alighted, and do not move them to the apiary till after sunset. This method has many inconveniences; as soon as a swarm has congregated in the new hive, and seems to be at ease in it, the most industrious amongst the bees fly off to the fields, but with a great many precautions: they descend the front of the hive, and turn to every side to examine it thoroughly, then take flight, and make some circles in the air, in order to reconnoitre their new abode; they do the same in returning. If the swarm has taken flight in the morning, the same bees make several excursions during the day, and each time with less precaution, as, becoming familiarized with their dwelling, they are less afraid of mistaking it; and thus, next morning, supposing themselves in the same place, they take wing without having observed where they have spent the night, and surprised, at their return, not to find the hive in the same place, they fly about about all day in search of it, until they perish with fatigue and despair. Thus many hundreds of the most industrious labourers are lost, and this may be entirely avoided if the swarms be removed as soon as the bees are perceived coming out: this sign is alone sufficient." Experience has long since proved that the custom of beating warning-pans and the like at the time a swarm leaves the hive is perfectly useless. The best method is to watch the swarm in silence, and after it has once collected, to lose no time in hiving it into a new, clean, and dry hive. Much trouble may be spared the bees if the loose straws be removed from its interior; and the best method of effecting this is, first to singe them with a wax taper, and afterwards to remove them with a hard brush.

PUTTING GLASSES OR SMALL HIVES UPON SWARMS.

—The most proper time for putting the bell-glass, or small hive or box, upon a swarm, will be from the eighteenth to the twenty-first day after their being hived; and should it be quickly filled, and more room required, which may be known by the crowded state of the bees inside the glass, and by their being seen to cluster at the mouth of the hive at nine or ten in the morning, let no time be lost in lifting up the glass, and placing between it and the stock-hive a small hive or box with a hole in the top (see p. 303, vol. i.). It is necessary to use this precaution at all times, but more especially in a rainy season, as a greater disposition amongst the bees to swarm then prevails. "Dry weather makes plenty of honey,

and moist of swarms," says good Mr. Purchase; and, however incorrect this position may at first sight appear, the attentive observer will quickly become convinced of its truth.

SECOND SWARMS.—A second swarm generally leaves the hive about nine days after the first, but the time may be exactly ascertained by standing quietly beside the hive after sunset, when the queen may be distinctly heard "to tum in hir treble voie," (*Butler's Feminin Monarchi*, Ed. 1643,) which is a certain indication that a second swarm will leave the hive. Should two or three queens be heard one after the other, it will be on the following day, if the weather be not very unfavourable. Should the queens continue to pipe after the departure of a second swarm, a third will *certainly* follow in a few days; but if one or two queens be found dead beneath the hive on the next morning, no more swarms can be expected.

JOINING SWARMS.—I must here observe, that second and third swarms are very seldom, if ever, worth preserving by themselves; but two second swarms, when joined, are very little inferior in value to a first swarm, and the union is very easily effected in the following manner. When two second swarms, or a second and third, come off on the same day, hive them separately, and leave them till an hour and a half after sunset; then spread a cloth upon the ground, upon which, by a smart and sudden movement, shake all the bees out of one of the hives, and immediately take the other and place it gently over the bees that are heaped together upon the cloth, wedging up one side about half an inch, that the bees outside may pass under, and they will instantly ascend into it and join those which, not having been disturbed, are quiet in their new abode. Next morning, before sunrise, remove this newly-united hive to the place in which it is to remain. This doubled population will work with double success and in the most perfect harmony, and generally become a strong stock, from which much profit may be derived.

Two second swarms, or a second and third, may be joined in the same manner, although one of them may have swarmed some days or even weeks later than the other; taking care, however, not to make the first one enter the second, but the second the first. A third and a fourth parcel of bees may be joined to them at different times in the same way till the stock becomes strong. It is almost impossible sufficiently to impress upon the mind of every one who keeps bees, the necessity of having his stocks *all strong*; for weak stocks are very troublesome, very expensive, and seldom, if ever, afford any profit.

Mr. Taylor says, "the stronger the colony at the outset, the better the bees will work, and the more prosperous it will become. I never knew a weak one do well long; and a little extra expense and trouble at first are amply rewarded by succeeding years of prosperity and ultimate profit." And, again, "thus strength in one year begets it in succeeding ones; and this principle ought to be borne in mind by those who imagine that the deficient population of one season will be made up in the next, and that the loss of bees in the winter is of secondary consequence, forgetting how influential is their warmth to the earlier and increased productive powers of the queen; and how important it is, in the opening spring, to be able to spare from the home duties of the hive a number of collectors to add to the stores, which would otherwise not keep pace with the cravings of the rising generation."*

* These extracts are from Taylor's "Bee-keeper's Manual," one of the best, cheapest, and easily-referred-to works on the subject we have met with.—Ed. C. G.

It is a remarkable fact, that two weak stocks joined will collect double the quantity of honey and consume much less than two of the same age and strength kept separately. Stocks must be joined after sunset, upon the day that one of them has swarmed; and the doubled stock must be placed upon the stand it previously occupied: great care must be taken not to shake the hive, nor must it be turned up. The combs being new and tender will easily break, and the stock by that means be destroyed.

PROPER TIME FOR TAKING HONEY.—It is probable that in favourable situations, towards the close of the present month, some glasses, small hives, or boxes of honey may be in a sufficiently forward state to allow of their being taken off, which may be known by their being filled with honey, and the combs *all* sealed up; or they may remain till those placed beneath them are also sealed up. Upon very strong and populous hives, in a good season, it is necessary to place even a third, but this must be removed with great caution, and certainly not before the end of August or the beginning of September, and not then unless the parent hive contains full twenty pounds of honey.

MANNER OF TAKING HONEY.—At noon, upon a clear fine day, pass either a very thin knife or fine wire between the hive and the glass intended to be taken: if this precaution be neglected, a piece of comb is frequently left projecting from the top of the one left, or the bottom of that taken, which will cause much trouble to the operator. Two adapting boards (see page 305, vol. i.) placed between the hive and the glass, will be found very convenient, for the knife or wire will then only have to be passed between them, and the danger of breaking the combs thus be obviated.

TO EXPEL THE BEES FROM THE GLASS.—The glass must be lifted *very* gently, kept in the same position, and placed upon three inverted flower pots, or something of the kind, in a shaded place, about thirty or forty yards from the hive, and the bees will make their escape in about ten or fifteen minutes. Gentleness, as I have before said, is very necessary in this, as in all other operations with bees; indeed, it is the only means of accomplishing the end desired; therefore, remove the glass very gently, and place it about six inches from the ground, on bricks or flower pots, as above: shaking, beating, or burning paper under it, have all a contrary effect than that desired upon the bees; they are alarmed by this, and will not leave the glass for hours, and perhaps days, when these means are resorted to. The glass being thus placed, a loud humming noise is first heard, and the bees are then seen to leave it, and in five or six minutes (all except a few stragglers, that may be brushed out with a feather) will have left it; but should the queen be in the glass, (which very rarely happens), quite a different appearance presents itself; no noise will be heard, nor a bee scarcely seen to leave it, but the hive from which it has been taken will, in a very short time, appear in great confusion. Whenever this occurs the glass must be returned immediately, and taken off again the next day. When a glass or box of honey is taken, it must not be left till the bees are all out of it, for it is very likely to be attacked by robbers, and a great part of it carried away in a short time. Robbers may be known by their endeavouring to enter the glass or box, while the bees belonging to it, being separated from their queen, fly home immediately upon leaving it. I have frequently found it necessary, in order to prevent robbers from attacking the glass, to remove it from

place to place every four or five minutes, or to take the glass into a darkened room, so that a small portion of light is admitted through a hole which communicates with the open air.

I have for a long time been wishing to see some bee glasses of a different shape to those in general use; they are much too high, and so narrow that it is difficult to induce the bees to ascend them. I have, therefore, within the last few days, given a design to Messrs. Neighbour and Son, 127, High Holborn, through whose kindness I hope very shortly to be in possession of some, and where I shall be able to refer inquirers, who, like myself, are anxious to procure a good shaped glass. They are $8\frac{1}{2}$ inches wide, 6 inches deep, straight at the sides, and flat at the top, with a 3-inch hole in the centre. I feel persuaded that the advantages of this shaped glass will be very great. The bees will have but little way to rise in the glass, and will generally commence working immediately on its being placed upon the hive; and, again, when the first glass is partially filled, another may be placed beneath it, and so on, which will prevent any delay in the working, which is otherwise almost sure to happen when a full glass is taken off and an empty one put in its place.

PLUMBAGO LARPENTÆ.

In your account about *Plumbago larpentæ*, p. 81 of vol. ii., you should have given the following as the reason why this new plant looks brown and sickly in many hands. I have it as fine as any plant I ever saw, and also as sickly as can be. Having had two plants of it early last autumn, I wintered one in a very cold house and never offered to propagate from it since, and it would do you good to come to see it; it is such a beauty now that I am sure no one has yet overrated it. The second plant I cut down early in September, and made 11 cuttings from it, which rooted as fast as a fuchsia; these, and the mother plant, I kept in a hothouse all the winter, intending that they should grow on and produce me plenty of cuttings early in the spring; but soon after Christmas they looked sickly, and as soon as the spring advanced the same rusty brown colour complained of by your correspondent made its appearance, and grow they would not, by hook or by crook, so that I had to take a few cuttings from my beautiful plant to get a stock from, and these soon rooted; and as fast as I could get other cuttings from their tops I did so, and now I have a large stock of them. Therefore, I can easily see how discredit has been brought on this fine new plant. The nurserymen, in their hurry to catch the market, treated all their plants as your humble servant did his second one, and between you and I and the public we can make out this—that everything that is requisite to know about this plant is now fully ascertained, except the *actuality* of its bedding-out qualities, but of that I have no kind of doubt. Turn out all sickly plants of it directly into a cool frame, and allow them plenty of air, but not much sun until they are in good growth, and if they don't soon recover, my name is not SENILIS.

[We are glad that our answer to "A Somersetshire Curate," at p. 81, was on the safe side, for we needed further information before we could venture to say that the sickliness of his plant, one only out of many similar complaints, is the result of wrong treatment. We can now confidently say that it is, and that his plant has been too tenderly nursed, and recommend him to adopt the mode practised by "*Scutlis*," who is one of the best gardeners in England.—*Ed. C. G.*]

MISTLETOE CULTURE.

There is no necessity, in order to the successful propagation of this very curious and interesting shrub, to make any incision in the bark of the tree to which you apply the seed; nothing more is requisite than to press the berry firmly to a branch which is not too old, and which is free from lichens and mosses, taking care to press the berry with sufficient force to break the skin. If these directions are followed, the viscous juice, which composes the bulk of the berry, will cause the seed to adhere so firmly to the bark of the branch that, I think, in a day or two it will be found that the seed of the mistletoe cannot be removed without bringing away with it some of the cuticle of the branch to which it has been applied. After some time the seed will swell a little and become greenish; it will then put out small processes of the length of perhaps about the eighth of an inch, which will lay hold of the bark; and in about six or eight months two small leaves of the mistletoe will appear. But what is very curious, I have observed that many, I believe I may say most, of the seeds will produce *two plants*, and I am not sure that I have not seen a single seed produce more than two plants. I suppose, therefore, that most of the seeds, perhaps all the seeds, of the mistletoe are what may be called *double seeds*, that is to say, each seed contains two radicles and two plumules. I speak with confidence upon this subject, because I have propagated the mistletoe too extensively and too successfully: I say *too* extensively and *too* successfully, because my experience will not suffer me to agree with you or your correspondent in supposing that it does not injure the tree on which it grows. I think it injures only that particular branch on which it grows, and if that is rather a large one, say an inch and a half or two inches in diameter, I do not think that it will suffer any serious injury; but if the branch is a small one, it will be found that, as the mistletoe increases in size, it will swell very much at the part on which the mistletoe is fixed; and the upper part of the branch, *i.e.* that part which is further from the trunk than the mistletoe, will become sickly. I would, notwithstanding this objection, advise your readers to cultivate this very interesting, curious, and ornamental shrub, taking care not to sow it upon any favourite fruit tree; for, in my opinion, the compact yet elegant form of the bush, the lively green of the leaves, and the delicacy of the pearl-like berries, render it one of the choicest ornaments of a shrubbery; and more especially of a single tree, in the winter and the beginning of spring. As the mistletoe is a slow growing plant, especially while it is very young, I think the nurserymen might find it worth their while to propagate it by sowing it upon crab trees; they would probably have a demand for the trees for the sake of the favourite attached to them. There is, however, one objection to this proposal, *viz.*, that trees are usually removed from the nurseries before they have attained to such a size as to admit of the mistletoe being grown upon them without danger of injuring them. Besides trees of the apple tribe and the white thorn, the mistletoe, as you know, and as I dare say most of your readers know, thrives upon the lime, upon the black Italian poplar (*Populus monilifera*), and, I conclude, upon other poplars. I have it growing on *Populus viridis*; I have it also on the Norway maple; it also grows and, I believe, thrives upon other trees; but the apple, the white thorn, the lime, and the poplar, appear to be its favourite soil, if I may use that term. Ornamental as the mistletoe is in a shrubbery, it is even more ornamental upon single trees in a park or pleasure ground. I am

afraid that some of your cottage readers will hardly understand you if you tell them that the mistletoe is diœious; perhaps they will understand you if you tell them that the male flowers, or the flowers containing the stamens, and the female flowers, or the flowers containing the pistils, grow upon separate plants, and that the hemp and the spinach are also familiar examples of this arrangement.

REV. EDWARD SIMONS,
Orington Rectory, near Watton, Norfolk.

CULTURE OF THE CHRYSANTHEMUM.

POTTING SUCKERS.—The chrysanthemum is an ornament with us from about the middle of October up to Christmas. I have for some years, either on the day after Christmas-day, or else on New Year's-day, made it a rule to cut down all my plants, and put away all their sticks for another year. Having turned out all my plants, and potted off as many suckers as I want for the succeeding season, I put from two to three suckers into each pot. Whether well rooted or not, I pot them all off, for I find them all well rooted by the spring. I pot them into 48-sized pots (five-inch diameter) if I have enough; if not, I make up with the 60-sized (three-inch diameter). When all are done I put them into a cold frame, with a few coal-ashes to stand the pots upon; give a little water, to settle the earth to the roots; put on the lights for a week or so; after this, give them all the air I can in all mild weather, and protect them well from all severe frosts. I am always on the alert for the slugs, as they are very fond of them.

I have three good reasons for potting my young stock at this early season:—1. Because I want my large flowering pots for another good purpose, to invert over sea-kale. 2. Because I can put all my plants in such a small space, to winter them and to look tidy too; as here, if I did not want my pots for any other purpose, I could wash them and put them all away in the dry for another year. 3. Because I am more at leisure about Christmas to attend to this work, and by potting my suckers then I have a nice lot of strong healthy plants in the spring to put my hand upon when I want them.

One thing I always do before I commence potting off my new stock: I ask my excellent master if he has either promised any cuttings or suckers to any friend, or if he will want any to give away in the spring: so as not to have the trouble with more pots than I want.

THE FLOWERING POTS.—I commence planting my plants into their flowering pots about the last week in April, and, perhaps, finish by the first of May. The soil I use is loam and leaf-mould; about half and half of each, turned over three or four times, and broken to pieces well before used, but not sifted. In potting, I put about a quart of the freshest horse-droppings I can get in the bottom of every pot, then nearly fill it up with my prepared soil, and put in my pot of young plants, leaving it when done about an inch below the level of the top of the pot. This space is left to receive future top-dressings. When all are potted, I stand my pots of plants upon boards, raised upon either one or two bricks high; this not only brings the plants up nearer to my eye, but places them out of the way of many vermin, such as worms and slugs in particular. I always have my plants stand clear of each other, so that each plant gets its share of light and air.

CULTURE AND TRAINING.—About a week after the plants are all potted, the earth is stirred with a bit of stick; and, after about another week, the shoots are

all pegged down towards the rim of the pot, something like the spokes of a cart-wheel, the earth stirred and a little fresh added. I sometimes have occasion to stop in the case of small weak plants, such as I should get in new from the nurseryman. In this case, I just pinch out the very tips of the tops, to bring out the lateral shoots as quickly as I can to cover the surface of the pot with shoots. I am very careful in easing down the shoots, so as not to break them off, as some of the sorts are very much more brittle than others. Sometimes a peg wants to be eased, and sometimes another or two want to be added. When the shoots have assumed the height of six or eight inches all round the rim of each pot, (the centre standing open,) I take from eight to 12 sticks—I mean full length flower sticks—and stick them in all round among the shoots, and tie the shoots down close to the rims of each pot, stir the earth, top dress, and the work is done. When the shoots get up again about the same height, by the same rule they are all tied down, and if any shoot should rise up from the centre it is brought down to the side with the others. I continue doing this work—that is, tying down, earth stirring, top dressing, and taking away any dead leaves—up to the last week of September or thereabouts. At the next tying I introduce as many more sticks as are required to make my plants handsome, filling up the centre and sides as nicely as I can, at the same time finding out the best front of each plant, and putting the name there as a mark, as I never turn the plant either to the right or to the left after this tying. At this tying, the plant can be trained as handsomely as the person who ties it has taste for such work. The shoots having been kept down all the summer are now at command, and any number of them, or even all, can be untied, and the shoots so placed as to run up either stick. The plants may want to be looked over once more and tied up; and should any stick be too long, cut off to the regular length at this last looking over. I am always very careful not to injure the leaves.

WATERING.—I am always mindful about this. I never let the chrysanthemum ask for water; and I water well when I water at all. I never use manure-water until the flower buds are all well formed, and then I feed them all I can.

VARIETIES.—I am mindful as to what sorts I grow for specimen plants. The following is my list to grow this year, 1849, in pot and on the wall:—

Whites: Coronet, Vesta, L'Ange Gardien, Orion, Fleur de Marie. *Reds:* Madame Poggi, Comte de Rantzau, Due de Camigliano, Theresa, Phidias. *Pale Pinks:* Bride, Dutchesse de Montihello, Minerva, the Queen and Queen Victoria, Marquis. *Purples:* De Crequi, Princess Marie, Pilot, Campestrone, Louis Philippe. *Yellows:* Annie Sauter, Superb Clustered Yellow, Temple de Solomon, David, Marshal Soult, Adventure, Queen of the Yellows, Queen of the Gipsies, Incomparable, Mirabile (redish), Formosum (cream), Celestial (pink), Flechier (purple).

The flowering pot I use is 12 inches deep and 13 inches diameter at the top. The plants, when full grown, from 18 inches to two feet high.

THOS. WEAVER,

Gardener to the Warden of Winchester College.

EXTRACTS FROM A NOTE-BOOK.

As one of your inducements to conducting such a periodical as *THE COTTAGE GARDENER* must be a desire to promote the happiness of your countrymen and your countrywomen, it may gratify you to know that it has been the main source of amusement, external interest, and even occupation, to one who has had five months' nearly solitary confinement to a sick bed and room. It may seem an extravagant assertion (to those who have not experienced it) that,

next to religion, the *thoughts*, to say nothing of the *practice*, of gardening have most power to soothe and sustain under the pressure of either anxiety, grief, or illness; nevertheless, I have found it so, and this, and the kind notice you take of queries as trifling as mine, are the only claims I have on your attention. Now that I am permitted to pay a few minutes' visit to my humble greenhouse, I am reminded of several past and present difficulties, which, with your advice, I have more hopes of conquering than while confined to sending down written directions to a labourer, who, though he can manage a kitchen-garden by rule-of-thumb, has no knowledge of flowers or their needs.

I never succeeded with any certainty in *raising cuttings* of the most easily struck plants even, till about four years ago I had a peep into the interior of a pitfall in a professed gardener's ground. Since that time my pots of growing cuttings of petunias, salvias, &c., look more like pots of healthy drilled seedlings than anything else. My plan is as follows:—I drain the pots (as on all other occasions) with potsherds or cinders enough to hide the bottom of the pot *entirely*, then dry moss enough to hide the potsherds, slightly pressed down. I then fill the pots with very sandy soil; for verbenas I put an inch of plain sand on the top; I then gather my shoots all with a terminal bud, if possible; then water the pots with a fine-rose watering-can, very thoroughly; by the time I have trimmed my cuttings to an eye to shoot from, and one to root from, from which the bases are cut away, and below which the stem is cut clean through, the water has drained from the pots enough to leave a surface which will admit of my tiny hopes being stuck into it like pins into a pin-cushion. Each pot, when taken up to the potting board to receive the cuttings, is put down again into a fresh dry spot, to permit all the water that can to drain away; they are then put into the cucumber-bed, if at work, or into a cold pit and shaded. My greenhouse is so dark and damp, that I always strike my main stock in June, and secure strong established plants before housing, so that I have a supply of cuttings to give or use all the summer from the pinched off tops, which I continually deprive my young plants of to make them bushy.

A very good *economical substitute for sea-kale* pots are empty butter-kegs, furnished by the grocer at 6d each. They will also take the place of hand-lights to turn over a patch of gladioli, or other half-hardy things that it may be desirable to protect from rain during the winter in the open ground.

I see that "Marianne" is told her *Gentiana acaulis* does not flower because the soil is too light and too poor. My own are the finest I have ever seen, and had never done well till I have planted them the last four years in a bed of almost pure sand. I try to imitate the snow covering they would have in their native home in the winter, by laying over them, during that season, enough sand to cover all but the points of the shoots; all spring and summer I water copiously when not a very wet season. I shall certainly try the rich soil, as I am anxious to propagate them as rapidly as possible; but, while I grew them in peat, and afterwards in a rich tenacious loam, they never shewed a bud, and have never failed since I gave them even a slight admixture of sand. Some friends in Scotland, who have a gravel walk of near 100 yards long, edged with *G. acaulis*, have told me that they never spread into the borders, while on the side next the walk they increase so luxuriantly that they are obliged to be kept in order with the garden

shears. I have likewise seen some plants producing fine, though not numerous, flowers, that were grown during the winter and spring in a bed of gravel, and lifted, when out of bloom, to make way for summer bedding plants: their living excited my astonishment, not on account of the soil, but the moving, as the approach of spade or fork to their roots usually acts like poison to these most lovely plants.

Till lately I had nothing but a damp pit to winter my half-hardy plants, so of course I could not keep *verbenas*. I do not remember where I learnt the following plan, which answered so well with hand-glasses, that I have ever since continued it with a

frame and lights:—Dig a pit, two spades depth, about six inches larger every way than the hand-glass or frame you mean to employ; fill this with large stones, pots, &c., and, at the top, cinders till within an inch or two of the level of the soil; then put from four to six inches of very sandy soil on the top: in this plant the *verbenas*, one in the centre, if for a hand-light, and one dozen at equal distances, if for an ordinary two-light frame: they should be planted at the same time the stock is bedded out (*i.e.*, when the mulberry leaf is the size of a shilling), and, by attention to layering through the summer, the surface of the prepared bed will be

covered with young plants, which, with the help of a mat or two in severe weather, will stand all the winter, and be ready for bedding in the spring: the same pits will do for four years at least. Most excellent *peeps* for laying *verbenas*, &c., may be made by judiciously cutting up the worn down stump of an old birch broom.

I see the system of *Palmaise heating* spoken of slightly in your columns, and reference, as usual, made to St. Thomas Church, Winchester, as a proof of its insufficiency. I have not knowledge or experience enough to make me wish to stand its champion, but it might assist impartial investigation if its complete success in the contemporary church of St. James, Weybridge, Surrey, were as generally known.

A FLOWER-LOVER FROM
CHILDHOOD.

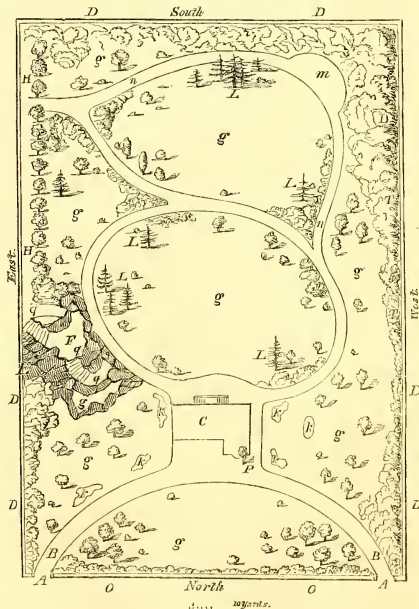
DAHLIAS.

SOME of our correspondents having desired a list of good dahlia, we have great pleasure in complying with their request, especially as now is the time to purchase plants. We would just observe, previously, that the dahlia is a gross feeder; and persons intending to cultivate them ought to prepare the ground for them by manuring it highly: on light soil, with some good rotten cow-dung; and on heavy wet soils, with stable-dung and rotten leaves, mixed with coal ashes or sharp river sand. Let the ground be frequently turned over, and the dung thoroughly mixed with it previously to planting. Lastly, never be in *too great a hurry* to plant, but rather delay till all danger of frosts are past. Then, if you do not mind the appearance of tall stakes, let these be driven firmly into the ground, in the very spot where each dahlia is to be planted. By doing this, you will not injure the dahlia roots with the stakes, which you

* Your questions, which we regret had been overlooked, shall be answered next week.—*En. C. G.*

GARDEN PLANS.—No. II.

LARGE SUBURBAN GARDEN.



A. Entrance.

B. Coach walk.

C. House.

D. Various shrubs and trees.

E. Dock, under which an ice-cellar.

F. Platform.

G. Grass.

H. Straight walk (allee).

I. Climbing roses, which cover the wall, with azaleas, rhododendrons, &c., low shrubs in front of the roses.

L. Various flower-beds.

L. Conifer, as cedrus, pinus, thuja, juniperus, &c. &c.

m. An elevated seat, the elevation already beginning by n.

O. Evergreens.

P. A horse-chestnut-tree or lime-tree.

q. Steps and walk up to the platform: the latter not exceeding 10 or 12 feet in height.

may do if the stakes are driven in some time *after* the plants are established.

TWELVE FIRST-RATE NEW DAHLIAS.

Mrs. Seldon (Turner's), rosy purple; Nymph (Stein's), white, edged with cherry; Lilac Standard (Stein's), rich lilac; Grenadier (Turner's), fine ruby; Elizabeth (Daniels), peach blossom; Duchess (Bushell's), white; Beauty of Hastings (Barham's), white, edged with crimson; Purple Standard (Keyne's), purple; Queen of the East (Burns'), bluish; Peacock (Barne's) lilac; Beauty (Turner's), white, edged with crimson; Dreadnought (Collison's), purple maroon.

The above are new ones, "let out," as the phrase is, this year, the prices being from 10s. 6d. to 7s. 6d. each.

TWELVE GOOD CHEAP DAHLIAS.

Yellow Standard (Stein's), fine yellow; Captain Warner (Girling's), crimson; Andromeda (Collison's), ruby; Gem Oakley's), white, edged with lavender; Berryer (Turner's); Louis Philippe (Turner's), very dark; Mrs. Anderson (Girling's), peach blossom; Antagonist (Bragg's), pure white; Box Drummond's), deep scarlet; Shylack (Collison's), rich scarlet; Standard of Perfection (Keyne's), crimson; Sir E. Aubrobus (Keyne's), good, red.

These are all good show flowers of excellent quality. Price, from 1s. to 1s. 6d. each. Those marked thus * are low growers, about three feet high; and the rest from four to six feet.

TWELVE FANCY DAHLIAS.

Jenny Lind, crimson and white; Viscount Rosseguier, white and purple; Madame, purple and white; Mrs. Shaw Lefevre, crimson, purple, and white; Roi de Pointe, maroon and white; Bouquet de Bruell, red and white; Adolph Dubras, unkean and white; Hermina, red and white; Mimosa, yellow and white; Picotee, yellow, striped with light red; Triomphe de Magdeburgh, scarlet, tipped with white; Miss Blackmore, white, tipped with purple.

Fancy dahlias are such as are curiously mottled, tipped, and beautifully variegated. They are mostly French varieties, and are very handsome; very suitable to grow in beds on a lawn or amongst shrubs.

PRICE PLANTS.

THE following are lists of the plants which were in the collections taking the first and second prizes, at the great May shows of the Horticultural and Royal Botanic Societies. We add the size of the largest specimen of each; and in the lists, H. intends Horticultural, and B. Botanic Society. The figures 1 & 2 show whether a first or second prize was there obtained.

STOVE AND GREENHOUSE PLANTS.—MISCELLANEOUS COLLECTIONS.

<i>Acacia pulchella</i> , B. 2 . . .	3½ feet high by 1½ foot diameter
<i>Adcandra fragrans</i> , B. 2, H. 1 . . .	3 by 2
<i>speciosa</i> , H. 1 . . .	3 2
<i>Aotus gracilimus</i> , B. 2 . . .	24 24
<i>Aphelich humilis</i> , B. 2 . . .	2 2
<i>sesamoides</i> , H. 1 . . .	24 2
<i>superba</i> , B. 1 & 2 . . .	3 2
<i>spectabilis</i> , H. 1 . . .	3 2
<i>spectabilis grandiflora</i> , B. 2 . . .	24 2
<i>purpurea</i> , B. 1 . . .	24 24
<i>macrantha</i> , B. 1 & 2, H. 2 . . .	3 24
<i>grandiflora</i> , H. 2 . . .	2 1½
<i>Azalea indica rubra pleno</i> , B. 1 . . .	4 3
<i>conqueror</i> , B. 2 . . .	2 2
<i>refulgens</i> , B. 2 . . .	4 2½
<i>Murrayana</i> , H. 2 . . .	3 24
<i>variegata</i> , B. 2, H. 1 & 2 . . .	3½ 3
<i>splendens</i> , H. 2 . . .	3 2
<i>lateritia</i> , B. 1 . . .	4½ 3½
<i>alba</i> , H. 2 . . .	4 4
<i>exquisita</i> , B. 1 . . .	4 4
<i>daphniflora</i> , H. 1 . . .	4 4
<i>formosa elegans</i> , B. 2 . . .	3 1½
<i>fastigiata lutescens</i> , H. 1 . . .	3 24
<i>Boronia anemonifolia</i> , B. 2, H. 2 . . .	3½ 2
<i>serotina</i> , B. 1 & 2, H. 1 & 2 . . .	3 2
<i>pinnata</i> , B. 1 & 2, H. 1 . . .	3 3
<i>Boschia disticha</i> , B. 1 . . .	3 3
<i>Chorozema Henchmannii</i> , B. 1 & 2, H. 2 . . .	3½ 2½
<i>Angustifolia</i> , H. 2 . . .	2 1½
<i>Lawrenceana</i> , B. 1, H. 1 . . .	4 3
<i>Varia nana</i> , B. 2 . . .	3 2
<i>Clerodendron Kempferi</i> , B. 2 . . .	4½ 3
<i>Daviesia latifolia</i> , B. 2 . . .	8 1½

<i>Dipladenia crassinoda</i> (trellis), B. 1 . . .	4½ feet high by 6 foot diameter
<i>Epacris grandiflora</i> , B. 1 & 2, H. 1 . . .	6 4
<i>Erica persolata alba</i> , B. 1, H. 1 . . .	4½ 3
<i>Hartnelli</i> , H. 1 & 2 . . .	4 2½
<i>intermedia</i> , B. 1 & 2 . . .	4 3
<i>perspicua nana</i> , B. 1 . . .	2 1½
<i>Limnæoides</i> , H. 1 . . .	3 2
<i>elegans</i> , B. 2, H. 2 . . .	2 1½
<i>Cavendishiana</i> , B. 1 & 2 . . .	3½ 2½
<i>depressa</i> , B. 2, H. 2 . . .	2½ 2½
<i>ventricosa coccinea</i> , B. 1 . . .	2 3
<i>minor</i> , B. 2 . . .	3 3½
<i>Bergiana</i> , B. 2 . . .	3½ 2½
<i>Eriostemon boxifolius</i> , B. 1 & 2, H. 1 & 2 . . .	4½ 3
<i>cuspidatus</i> , B. 1 . . .	5 2½
<i>myoporoideis</i> , B. 1, H. 1 . . .	4 3
<i>neritifolius</i> , B. 1 . . .	2½ 2
<i>Franciscea Augusta</i> , B. 1, H. 1 . . .	4½ 2½
<i>macrophylla</i> , H. 2 . . .	3 2
<i>Gardenia Fortunei</i> , B. 1 . . .	3½ 2½
<i>Gompholobium splendens</i> , B. 1 . . .	2 1½
<i>polymorphum</i> , B. 1 & 2, H. 2 . . .	2½ 2½
<i>barlaegrum</i> , B. 1, H. 1 . . .	3 2
<i>Helichrysum argenteum</i> , H. 2 . . .	4 3
<i>Hevea Celsii</i> , B. 1 . . .	3 1½
<i>Ixora coccinea</i> , B. 2, H. 1 . . .	4½ 2½
<i>grandiflora</i> , H. 2 . . .	4 2
<i>crocata</i> , B. 2, H. 2 . . .	3 2½
<i>Leschenaultia Baxteri</i> , B. 1 . . .	2 1½
<i>major</i> , B. 1 . . .	3 2
<i>formosa</i> , B. 1, H. 2 . . .	2½ 2
<i>Oxylum pultenaceum</i> , H. 2 . . .	3 2
<i>spectabilis</i> , B. 1 & 2, H. 1 & 2 . . .	4 4
<i>rosea</i> , B. 1 . . .	3½ 1½
<i>decussata</i> , B. 2 . . .	3 2
<i>diosmeifolia</i> , B. 1, H. 1 . . .	4 3½
<i>Polygala cordifolia</i> , B. 1 . . .	2½ 2½
<i>oppositifolia</i> , B. 2 . . .	4 3½
<i>aluministana</i> , B. 1, H. 1 . . .	3 2½
<i>acuminata</i> , B. 1, H. 1 . . .	5 4
<i>Podolobium trilobatum</i> , H. 1 . . .	4 3
<i>Staurophyllum</i> , H. 1 . . .	5 4
<i>Prostanthera violacea</i> , H. 2 . . .	3 2½
<i>Tetradlea verticillata</i> , B. 2, H. 2 . . .	3½ 2½
<i>Vinca rosea</i> , H. 2 . . .	2½ 2½

(To be continued.)

EXTRACTS FROM CORRESPONDENCE.

LIME BURNING.—A clerical correspondent, writing to us from the neighbourhood of Faversham, Kent, says:—"Lime is expensive stuff. I make it as I want it. I had a small load of chalk, price 1s. 6d.; a bushel of lime would cost the same. I put a lump or two on my fire, and in two or three days, of course, I have several small pieces of very respectable lime. But besides this, my fire is improved; for, as soon as the chalk is red hot, it throws out considerable heat, and also helps to keep the coals alive; in fact, it acts very much as a fire-brick. A third advantage is, that my lime is always fresh; and a fourth, that I have a supply of chalk at hand as well."

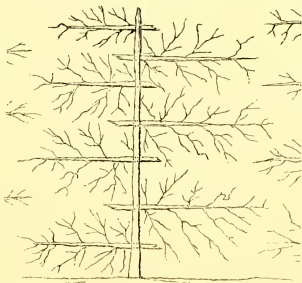
FARMER'S GLORY POTATO.—A clergyman, writing to us from his vicarage, near Brighton, says:—"With regard to potatoes, I noticed some time back a correspondent of yours mentioned the Farmer's Glory potato as the worst he tried out of twenty sorts. In this place I have grown it, and it is the only potato which escaped last year; thus proving the truth of an observation of yours, that locality has a great deal to do with the potato's liability to the blight or disease."

EVERGREENS FOR WALLS.—Among your list of evergreens for covering an old wall, you forgot the beautiful Gum cistus, with its delicate short-lived blossoms. My little garden is enclosed with a wall a yard and a half high; against it I have a fuchsia, cistus, rose, Pyrus japonica, Kerria japonica, ribes, rose, pyracantha (very pretty), peach (raised from a stone), white jessamine, currants, fig (of my own raising, with figs on it), lavender, grape vine (raised from a raisin-pip), rose and honeysuckle, ivy, coral-tree, passion

flowers, honeysuckles, white lilac, yellow jessamine, currants, coronilla, rose, currants, laurel, cotoneaster, black currant, purple lilac, cob unt, rose, B. currant, rose, ivy; so I think my old wall is in a fair way of being hid. I am rather pleased to find I have been doing what you recommend in many things. I have a gooseberry-tree trained up to a head near six feet high; indeed, I am obliged to do so to make the most of the room. I have, also, blackberry-bushes, planted last spring: they are going on well. I hope they will have fruit on this year. I do not know how long fuchsias will live, but I have one in the ground that has been there seven years next Midsummer; it is breaking out about three feet from the ground; it was nearly 10 feet high last summer, and very full of blossom: I think it is *Fuchsia gracilis*; it is not the oldest sort I can remember, but the next, and is as pretty as any of the new ones. I must give you one sentence from Maria Child: "The common wild flower that I have brought to my garden, and nursed, and petted, till it has lost all home-sickness for its native woods, is really more valuable than the costly exotic purchased in full bloom from the conservatory."—MARY MARSHALL.

[If there were less of suggestive hints in this extract than there really are, still we should insert it; for there is a healthy freshness in it, making one feel that there are those who are loveable away from one's own chimney-nook: consequently cherishing that feeling which ought to be cherished—the love of one's neighbour.—ED. C. G.]

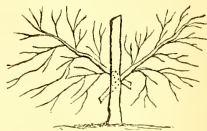
PEA-STICKS.—It is probable that many of the readers of THE COTTAGE GARDENER, like myself, have found it difficult to obtain pea-sticks long enough for the tall-growing varieties. I annex my method of making short pea-sticks do for the tall-growing peas; the plan is so simple that I think the drawing



needs but little explanation. I obtain a larch pole of the required length, and bore holes in it to receive the small and spreading boughs of the spruce fir, the beech, or from any other suitable spreading tree, and insert them firmly into the holes. When the season is over they may be taken to pieces, and if laid carefully aside will last several years.—JOHN BRIDGWOOD, *Potteries*.

[The above mode is excellent for tall-growing varieties; but another correspondent suggests the adoption of a similar mode on a reduced scale, for

plants of more dwarf growth, as represented in this sketch.—ED. C. G.]



SCARING BIRDS.—Among the various plans suggested by you for frightening birds from a crop, I think I have not noticed the following, which was recommended to me some years ago by an experienced gardener, and has ever since been adopted by me and several of my friends with unailing success. It is simply to tie a piece of very thin light wood, of from nine to twelve inches in length and three to four in breadth, to a stick, four or five feet long, by a string 12 or 18 inches long, so that the wood may be suspended longways from the stick. Place some of these on the patch of ground to be protected, at a distance of 10 or 12 feet apart, making the stick stand rather leaning. The slightest wind will keep them in motion, and nothing will come near them.—REV. J. P.

LASHMAR'S SEEDLING GRAPE.—Let me call your attention to a very early vine raised at Brighton, and called Lashmar's Seedling. As an out-door vine it is invaluable, being at least a fortnight earlier than any other that I am acquainted with. It is a white grape, with very handsome leaf, good-sized, rather oval berry, and thickly clustered. I believe it was raised by a Mr. Lashmar, of Brighton, from some dried foreign fruit.—REV. A. S.

GREEN FLY ON PEACHES, &c.—I have experienced so much benefit by the use of the following composition, in destroying the blight on peach and nectarine trees, that I am desirous to make it generally known. I have adopted it most successfully myself, and have seen it succeed with my friends, so I think I cannot do better, to make it publicly known, than by forwarding it to your very useful work, THE COTTAGE GARDENER. The application of it must be made every other if not every year, but I think once in two years may be sufficient if thoroughly well done. Take 1 lb sulphur vivum, 1 lb Scotch snuff, 1 lb quicklime, $\frac{1}{2}$ lb lamp black, 1 lb soft-soap, and of water sufficient to make it into the consistence of paint. Unnail your trees about February, before the bloom buds begin to swell, and with a common paint-brush paint every branch from the ground upwards. I have seen it succeed with trees that had year after year been totally unfruitful, and had every leaf destroyed. J. N. B., *Halstead Lodge*.

PEAT PATHS.—As any information which may be turned to good account seems acceptable to THE COTTAGE GARDENER, I do not hesitate to suggest, to those who may be circumstanced as I am, the laying down some one path or more in their garden, with good tough fresh-cut peat. The reasons that induced me to try the experiment were:—First: an unwillingness to gravel, or lay stones on a path which may be only a temporary one; and the soil being of rather a clayey nature it was necessary to cover it with something that would secure a dry path in wet weather. Secondly: I had but small stowage room; and therefore this peat path is intended, when half rotted down, to be taken up and laid by for such uses as call peat

into requisition. And, thirdly, I may add, it is one of the most agreeable things to walk on that can be imagined; it is beautifully springy and always dry. Mine has been made about three weeks, and is well settled with the recent rains; it has had heavy barrows frequently wheeled over it, and promises to answer remarkably well. As it requires some little pains bestowed upon it to make it well in the first instance, I will describe the method I adopted, leaving others to improve upon it if they can. The peat I procured was from a space of ground from which the common furze had been cut, the natural soil being a light sandy heath or peat mould. As near as circumstances permitted me, (which were rather awkward ones, as the old tough roots of the furze must be avoided as much as possible,) I cut my peat as I would flag for a lawn, only rather thicker and much wider; but the thickness and width will, of course, depend upon the particular circumstances of each case. I made the ground or path, upon which the peat was intended to be laid, as even as I could, and then laid the flags root upwards, and fitted them together upon the path as closely as possible, making the edges fit exactly. I then rammed the path down with a blunt rammer or cudgel, the thick end of this weapon being not more than four or five inches in diameter; this process over, it will be found that, as some of the peat is weaker in places than at others, which can only be tested thoroughly by the rammer, it becomes necessary to lift up gently the flags in which the weak places exist, and tuck some bits of sod or peat under them, and then lay them down again, and ram again as before. It will be found that nearly all the flag will thus have to be relifted, if the kind of peat is used which I describe, as some of it will be found to be pulverizing into decay; and the roots of the furze, moreover, prevent you getting it up so evenly as you otherwise might. Unless proper care be taken in the first laying down, I can imagine that disappointment would follow; proper fitting, and light, not violent, ramming being the only security against the turves kicking up in all directions; for it will be remembered that the roots are upwards, not downwards, and therefore you get no help from them. I had nearly forgotten to observe—that which, however, will be apparent to every one—that it is necessary that the surface of the paths, before the peat is laid on them, should be lower by the thickness of the turves when rammed and well trod on than the adjacent borders or beds; so that, in laying down the peat, you have to fill up a slight hollow or depression, the sides of which keep your turves together. When the fitting is completed, go over the path with a knife once or twice, at intervals of a day or so, and cut off the bits of root and fibre that project; and the *back* of a rake will be the best thing to remove any loose soil which may ooze from the peat, or other litter that may require removal. A broom must not be used—for even a new one will not be found, in this case, to sweep clean—it will create dirt and spoil your path. The path has a very neat appearance, particularly when it comes in contact with grass, as mine does, the edges of the borders being grassed. What the durability of it will be, remains to be proved. It may last two or more years, but I shall be content if it lasts but one, for the peat will be useful, and more flags are soon procured in this, as in most districts, to supply the place of the old material.—W. H. G.

FAILURES IN BEE-KEEPING.—About two years since I became desirous of keeping bees, being, however, entirely ignorant of their habits and management. Accordingly, about the middle of May, 1847,

I purchased of a cottager a first swarm which he was duly expecting; his swarm was hived on the 22nd of May, but was not brought to me until a week afterwards (29th), when the cottager placed it on the stand prepared for it, and cemented it down. The following morning I found the bees in the utmost confusion, a great bunch of them hanging from the bottom of the stand, whilst others were whirling about in apparent distraction. All this, in my ignorance, I attributed to their not having become settled in their new quarters; but as the day advanced (it being very warm for May), I was alarmed at seeing a quantity of honey spread on the ground beneath the hive, and many dead bees strewing the ground, drowned in their sweets. All the next night and following day the same state of things continued, but the number of living bees was hourly getting less. I then sent for a man who had kept bees for many years; he turned up the hive, and, to my vexation, not a handful of bees remained alive; the whole mass of comb had fallen from the top of the hive, crushing, drowning, and destroying all the inmates: here was an end of my first misfortune. The individual whom I called to my aid then told me he could spare me a first swarm, which had come forth about the middle of May: this I gladly agreed to take, and it was brought about the end of June. After this stock had been in my possession about three weeks, thinking it was full of honey, as the bees were idling about, and clustering beneath the stand at night, I removed a circular piece of about three inches diameter from the top of the hive, and put on a small hive in full expectation of securing a supply of honey therefrom; but on taking the upper hive off about a month after, I found it quite tenantless, containing nothing but one small piece of snowy-white comb, about twice as big as a hen's egg. Just before the winter of 1847, the straw hive not being a new one I had it cemented on the outside, and thinking that this would prevent the escape of exhalations from the bodies of the inmates, and that this would prove prejudicial to their health, I had a circular piece of deal, $3\frac{1}{2}$ inches in diameter and $1\frac{1}{2}$ inch thick, let into the top of the hive, pierced with four holes, each being about $\frac{1}{2}$ inch in diameter, which I intended to serve either as ventilators or as passages for the bees to pass up for the purpose of feeding, or of filling the upper story. The $\frac{3}{4}$ inch holes I covered with a moveable piece of perforated zinc, so as to exclude the bees from the upper story at pleasure. I fed the bees in the autumn of 1847 and in the spring of 1848, and during the spring and summer they appeared very strong; indeed they would scarcely suffer any person near the hive. During the month of May I was rather anxious to obtain a swarm from this hive, for the purpose of supplying one of Nutt's hives (boxes) which I had purchased, and with that view prevented their passing into the upper story. From their confusion during the latter part of May and beginning of June I was led to expect a swarm, but the middle of June having arrived, and still no swarm appearing, I was anxious to prevent their doing so, fearing it might be getting so late that it would weaken the old stock, and that the new swarm would not have time to lay up in the Nutt's hive a sufficient supply of honey for the following winter. I therefore opened the communication with the upper story; some of the bees immediately made their appearance through the openings, convincing me that there was ample room in the four holes for them to carry on their communication

between the two hives. No attempt, however, was made to fill the upper story; and as late as the middle of July a swarm was thrown off very suddenly. I placed this swarm (a small one) in a wooden box, not setting my affections much upon it. Still the parent stock remained as restless as ever it had done from May up to the time of this swarm; and a fortnight afterwards (1st August) another swarm arose as suddenly as the first had done. This I put into one of Nutt's boxes: it was larger than the first swarm, but still small. The old stock still remained as restless as ever; and three days afterwards (4th August) a third swarm arose, consisting only of two or three handfuls: these I placed in a small box, and, wishing to unite them with the second swarm, I brought out a small table, covering it with a clean white cloth; in the evening, with a smart blow on the top of the box containing the third little swarm, I precipitated the bees upon the table-cloth, and immediately placed over them Nutt's box containing the second swarm; securing the table-cloth round the sides of the box, I left them during the night and next day till evening, when finding that all was quiet I removed the table-cloth and placed the box on its stand; on the table-cloth I found one of the *queens* lying dead, and about 20 workers. In the month of September these swarms all died, leaving each box about a quarter filled with comb, but no honey. All this I was prepared to expect as the result of the previous disasters. Still the old stock remained, and I hoped, by feeding in the autumn and during the present spring, in some measure to retrieve my ill fortune by saving it. However, in February, (the bees having been out during some very mild days,) I observed that for several days they had not moved from the hive, although the weather had been exceedingly mild and sunny. On lifting up the hive my fears were confirmed; every bee was dead, the hive filled to the brim with dark-brown comb, but no particle of honey. My hopes of 1847 and 48 have thus vanished, yet I am desirous of trying once more; and if, from this tedious description, you can give me an idea of the cause of my failure, I shall greatly esteem the favour.—G. W. PRETTY.

[We have submitted your letter to Mr. Payne for his consideration, and the following is his reply:—"My calendar for May will fully answer Mr. Pretty's letter. *Mr. Pretty must begin again*, and by following the simple directions there given, or those given in my 'Bee-keeper's Guide,' cannot fail of success. Let him try swarms as directed in the calendar for May, and follow the directions which will be given in future ones, and success will follow. If he wishes to know the reasons for his not succeeding, they are as follows:—First, with his purchased swarm, it was not finally placed on the evening of the day it swarmed. This is IMPERATIVE, otherwise the tender comb will break down; and so it perished. The second swarm obtained by Mr. Pretty was very much injured by being removed in June, and by its after treatment destroyed: namely, by being compelled to throw off swarms. The late swarms were valueless, and the parent stock destroyed by their leaving so late. *The hole at the top* of the hive should have been made four inches in diameter, instead of a number of small ones, and all would have gone on well."—ED. C. G.]

FORSYTHIA VIRIDISSIMA.—I observe, in the No. for April 12, an inquiry respecting the Forsythia viridissima, as to whether it is quite hardy. I may just

state that I turned out a plant into the open border (in Leicestershire) last May, and when I protected the fuchsias and other tender shrubs this plant was totally overlooked. Still it has stood the winter perfectly well, not being injured in the least, till the past month, when the tips of the shoots have been nipped, but not to injure it.—ONE WHOM A GARDEN MAKES HAPPY.

TO CORRESPONDENTS.

ACCENTING NAMES (H. H.).—We have not omitted to consider the advisability of undertaking to accent the names of plants to indicate their pronunciation, but we find that it cannot be done, so as to insure accuracy, in the expedition necessary for printing a weekly publication.

VINE IN A GREENHOUSE (T. Pictou).—This is the best time to plant a vine in a greenhouse, but it must be out of a pot. A vine cannot be removed from the soil before October. We approve of your memorandum book. We have seen many such, and there is fancy in these useful articles as in other things.

VENTILATING BEE-HIVES (R. B.).—There is not any ventilator required in the small hive or box that is placed upon "The improved cottage-hive," but when they are nearly filled, should the bees cluster at the mouth of the hive, place another small hive or box between the one partially filled and the stock, which will afford both room and ventilation. Neither is ventilation required in the upper box of the amateur's hive. The bars in both the upper and under boxes of this hive are of the same size. More information about ventilation will be given in our next number.

QUARRÉNDEN (Eneus).—This is the mode of spelling this apple, which is usually known as the Devonshire or Red Quarrenden and Sack apple. It was so called, probably, after the name of its first cultivator, or the place where it was first raised. The Chaumontel pear was thus named after the village of Chaumontel, in the department of the Oise, in France, and, therefore, ought not to be spelt, as you suggest, *Charmante-elle*.

FLOWERS THAT WILL BLOOM IN WATER-GLASSES (Ibid).—Properly managed, nearly all bulbous-rooted flowers may be bloomed in this way; and, of course, all aquatic plants, but many of the latter are too large for the purpose. Although cold water certainly checks the progress of hyacinths in water-glasses, yet we do not think it would do to employ cold water to prolong their blooming. The temperature to which the leaves and roots of plants growing in water must relatively agree, or they will not flourish. The passages you point out are not errors.

GAPES IN CHICKENS (M. R.).—This disease, which is also called *the Pip*, is a collection of little worms in the windpipe of the animal, and is believed to be occasioned by drinking impure water. There are only two available remedies, one of which is either to shut the bird up in a box with ignited tobacco until it is nearly dead from inhaling the smoke; or, holding the beak open, to hold a feather dip into sweet oil close to the opening of the windpipe, and when this opens in the act of breathing to pass the feather quickly but gently down, turning it round two or three times: upon drawing it back, some of the worms will adhere to the feather, and others will be killed by the oil. This must be repeated until a cure is complete.

GARDENS WITH A CLAYEY SOIL (G. W. Pretty).—The soil of your garden being a blue clay, immediately under the grass, it is no wonder that your shrubs and flowers do not grow. You ought, by all means, to have your plot well and effectually drained. As the clay is so near the surface, the drains should be brought up to the surface also, or, at least, as high as the top of the clay, that is, first lay draining tiles across the surface, and then, at two feet apart, lay carry the water from the house top. After laying the tiles, fill up the drain with broken brick-ends, small stones, &c. Having brought this rubble up to the surface of the clay, then, previously to putting on the soil, cover the rubble with some thin turf. This covering will effectually prevent the soil from falling among the brickbats, and thereby choking up the drain. If you do not make your garden dry, nothing will thrive in it. It is the most important and necessary of all gardening operations. Then, having accomplished this, and made your ground dry, procure some good friable loam, and cover the clay with it, to the depth of nine inches at least, previously loosening the clay with the spade. It will then let the rain water descend through it into the drains. If you cannot procure loam in sufficient quantity, get some of the soil of the *heath* that you mention, and mix it with the best loam you can get. The arrangement of your shrubs, beds, and grass-plot is well enough; but why have straight, formal walks, and the large oval beds had better have been under turf, which would have made the garden look much larger. There ought always to be in gardens, where grass is introduced, a large space of that ornamental material for the eye to rest upon. With respect to furnishing your beds in winter, read in our early numbers the articles on planting evergreens in pots. *Ranunculuses* would not thrive at all in your soil. Hardy herbs you may plant in the circles, if you can procure sandy (not fibrous) peat. Most of the things we have mentioned as bed-out plants may be procured and planted out now. We do not know of a look on soil so suitably prepared.

PLAN OF GARDEN (W. P. H.).—Your plot of ground that you wish to improve is unfortunately situated, yet you may, by judicious management, make it both ornamental and useful. In the first place, the wet part of it must be drained in the manner we describe in our last correspondent; then divide off a portion at the end end, where your entrance is, to cultivate flowers. As your garden is square, we would recommend oblong beds with box edgings for your flowers.

Suppose we say you take a space for this purpose 10 yards deep; this will be sufficient to grow a large number of choice roses and flowering plants, such as herbaceous perennials, biennials, and annuals. Under the sycamore tree you might build an arbour, with a tool-house and yard for composts. Carry the walk from the entrance straight down to the vegetable part. Plant a low hedge of privet to divide the two, and have a light hand-gate to enter the kitchen-garden from the part devoted to flowers. With respect to your walls, we recommend strong iron rods, fastened with plugs into the walls, to tie the trees to, instead of pulling into the mortar, as is usually done. Make the soil for your fruit-trees good, by adding the best manure you can get. Fruit-trees will bear better with fresh loam than so much manure. Do not plant any tall fruit-trees, such as pears, apples, plums, or cherries; but plant dwarfs, that is, trees with short stems. Where your soil is wet, dry on the surface, and cover the roots with pure loam; where it is plant deep. Read Mr. Errington's Part of *The Cottage Gardener* for excellent instructions about fruit-trees and their management; and Mr. Barnes, for kitchen vegetables. Write again if you want further information.

LOAM (W. H. G.).—This, which you propose to put in a heap in your farm-yard, to be turned over and trampled by the air during the next summer and winter, and to be used for general purposes, will be improved "by mixing with stable manure," if intended for application to kitchen garden crops, strawberries, &c., but such stimulating manures had better not be added to the loam in the form you thus propose it is to be employed in potting. We will see the use we have made of part of your communication in our editorial to-day.

PLUM PRUNING (Brookland Gardens).—The process you have performed on your young plums is termed "shortening back," and is totally intended to insure plentiful development of shoots and spurs at a low level, in order to carry out dwarfing system. If it were immaterial either to what height the trees grew, or what form they might assume, such advice would not be given, and small would be the amount of pruning requisite. Your trees have now, by your explicit statement, "pushed at nearly every joint," now, therefore, is the time to make a selection for you surely have shoots enough to form the entire skeleton, or nearly so, of the future tree. Let every shoot requisite be retained and fixed in shape by sticks, the rest may merely have the top pinched off; this will engender spurs before the season has passed away. It is immaterial how many branches they may have had originally; try and secure six or eight, and set them out in a punch-howl form. If the trees continue to increase in growth, let all the shoots be pinched or stopped in the end of July; of this, however, you will, in the interim, know more in our future pages.

LUCERNE (G. R., Lyme Regis).—We are not aware that any peculiar mystery attaches to the growth of lucerne. As it is a crop which may remain in a productive and profitable state for nearly half a score years on the same ground, means must be taken to lay it down on land thoroughly cleaned. Some green or root cropping, therefore, might precede it; try and secure six or eight, and set them out in a punch-howl form. If the trees continue to increase in growth, let all the shoots be pinched or stopped in the end of July; of this, however, you will, in the interim, know more in our future pages.

MANGOLD WURTEL (Ibid.).—Manure may be dug in round mangold wurzel, avoiding going too close to the stem. Why not dig it in previous to sowing?

ROCKERY (Lex, Jun.).—We can scarcely advise you what to plant on your rockery, to grow in the under part of your arches or caverns. Try some common ferns, such as *Scalopendrium vulgare*, *Aspidium filiforme*, and some kinds of moss found in similar places.

GERANIUM LEAVES (Ibid.).—Your scarlet geraniums have got the disease known as the spot, caused, no doubt, by too much damp and decaying roots growing in improper soil. Shake them clean out of the soil, wash the roots in rain water, report in light pure loam well drained; place them in a cool place, and in a few days they will out they begin to grow; and then gradually inure them to bear the light and air. They will recover, but are scarcely worth the trouble, as you can buy good strong plants at 12s. the dozen.

STRIPPING BEES (M. R. W.).—We have never used either ground ivy or laurel leaves for the foundation of bees; therefore can give no directions for their application; the latter, being poisonous, we should consider very objectionable. *Fungus maxinus* (*Lycoperdon pratense*), or great puff-ball, is found in woods and meadows in the autumn, and if gathered when ripe, and dried, may be kept for a length of time; but it is not at all certain that it can be obtained there is an excellent substitute for it in the *Rhododendron*, or mouse skin fungus. Now, this substance abounds in the London Docks' wine vaults, and may be obtained abundantly at any time. It is often found several feet in length. The apparatus for using this, or any of the before-mentioned substances, may be had of Messrs. Neighbour and Son, 127, High Holborn, London.

PRUNING SCISSORS (Instigius).—The very best you can use, and we are glad of this opportunity of recommending them to all our readers, are to be had of Mr. J. Turner, Neepsend, Sheffield. He will send a pair in a case with any order when you will enclose to him 1s. penny postage-stamps. We think them better than a knife for most pruning purposes, for the blades are of such a form as to cut clean without any bruising; and although so small as to be carried in the waistcoat pocket, yet they have power sufficient to cut easily through green shoots, and any kind of wood.

GOOSEBERRY BORE (J. Turner).—The small green caterpillars with black heads, that wriggle backwards so actively when disturbed, we believe to be the produce of a very small moth, called *Lozotortia levisana*. It is very closely allied to the rose moth, described at p.

63 of this volume. We shall be glad to receive from you one or more of the berries with the borers in them; for if you are correct in thinking these small green caterpillars are connected with the injury, you will refute the statement, made by Mr. Major, that the herry borer is the larva of the moth *Geometra granularia*.

NAMES OF PLANTS (C. J. Y.).—We are sorry that no one florist in the world could name your cinerarias from merely looking at a few blooms; there are hundreds closely resembling each you have sent, and each with a different name. The same remark applies to your roses; we could, probably, be right in assigning names, but when you can be certainly correct at the expense of a penny postage-stamp, why not apply to the florist from whom you purchased them?

"MY FLOWERS" (Flora).—It was a mistake to number the paper at p. 204 "No. 15," it ought to have been numbered 14, so that not one is omitted, and we quite agree with you in thinking they are really so good that not a particle ought to be lost. We then this volume closes, the same writer will commence another series of papers on a subject even more interesting.

BEE-COVER (Frank).—Your arrangement of the stand is quite correct for your hives. Your side hives may be either of wood or straw. Buy "Taylor's Bee-keeper's Manual," it will give you answers on doubts which may be desired, quicker than through our columns. Do not fix the posts of your cover so as to touch your beehive, they will enable mice and other vermin to crawl up.

ANSWERS TO CORRESPONDENTS (Clericus, Beds.).—You will find an answer to your last query at p. 92. We are slower every year without any favour, whatever position in society he holds, and we are accustomed of having ever omitted a reply to any one. When delays occur, it is only because we are seeking for information on points on which we may entertain doubts. If any of your queries yet remain unanswered, pray oblige us by repeating them.

YOUR INDEX (R. L. T.).—This has been completed, with a general index. A cover and the index, ready for binding, may be obtained through any bookseller, at our office, priced thirteenpence. All the back numbers may be yet had. We have reprinted some of the early ones three times; and we have no any more, we recommend our subscribers to lose no time in completing their series.

LIQUID-MANURE FOR CELERY (J. B. S.).—This made from pig and stable-manure is best, but the addition of sheep's dung and the dung of oxen fitting on oak culk would be beneficial. Mr. Nutt adds a little sulphate of ammonia. We recommend you to follow his mode of culture, and that by Mr. Turner, so fully detailed in our first volume. Thanks for your correction.

GARDEN NETTING (P. S.).—You will see the name of a market at p. 82. Early Welsh cabbage may be sown at any time when other early varieties are sown. We have not heard anything more about the early rhubarb. No room for more answers this week.

ANGLE FOR GREENHOUSE ROOF (A Subscriber from the Commencement).—Do not have it more than 36°. See what Mr. Beaton says at page 126 of our first volume. Our own opinion is that 36° is the best angle.

SOIL FOR ORANGES AND LEMONS (Ibid.).—We have always found a rich light loam mixed with one-fourth leaf-mould the best. The top soil of a rich pasture, with the turf chopped up and rotted in it, would do without any addition. Above all things see that the drainage is good.

ONIONS AND CAULIFLOWERS FAILING (A. Z.).—The woodashes, strongly impregnated as they are with caustic potash, was quite sufficient to cause the failure. You put it below and over the seed in the drills, so that the young roots were destroyed by it as soon as they appeared. Your cauliflower-plants, dipped into a paste of soot and saltpetre, were all killed by it, and well they might. Such applications are far too violent. We shall in time give full directions about their culture.

POLYANTHUS SEEDLINGS (Cottage).—By careful treatment you may grow the blooms finer but not change their colours. You must not move them out of your border now or they will bloom weakly next year. The roots and leaves are at work, preparing the materials for next year's growth.

PIT BUILDING (X. O.).—Your situation facing the S.W. is well suited for this, and we can add nothing to the very ample directions we have already given in our first volume.

POTATO CULTURE (Rev. T. E.).—Thanks for your paper; it shall have an early insertion.

SILK WORM'S EGGS (A Cottage Gardener).—Their change of shape and the black speck are symptoms of their being in a room where there is air that is not necessary. It is of no use hatching them before the mulberry leaves are ready. Nature will bring them out together, if you leave them to her.

CORROSIVE SUBLIMATE (T. O. M.).—We cannot give as our opinion to the use of it, but, for the sake of the plants, we would grow in a soil "saturated with corrosive sublimate," they would not be rendered dangerous as a food for man. We believe that such a soil would kill them, but, if it did not, there are so very few salts when in solution that roots reject altogether, that we fear some of the corrosive sublimate they take into the vessels of the plants, sufficient in quantity to render them unwholesome, if not fatal, as food. This, however, is only an opinion, for we know of no experiments on the subject. M. Marceat found that kidney beans were killed in two days when watered with a solution of oxide of arsenic.

ROSE (X. X.).—It is probable that the potato tubers will keep in an ice-house for many years, and then vegetate; but, under ordinary circumstances, they cannot be kept for three years, and then he used for planting.

OPEN BOILER (Espectator).—The open boiler for heating a pit, described in vol. I. p. 86, is a boiler, or pan, without any top. The water flows and returns along the pipes just as well in an open as in a close boiler; it only requires more attention in keeping it full of water. You can have them of any height you please. Flanges are the surfaces by which the ends of the pipes are fastened to each

other by nuts and screws. Any stone-mason will tell you where to get the thick slates most readily.

BANKSIAN ROSE IN GREENHOUSE (*Banksia*).—Your White Banksian rose in a pot is growing too tall and straggling, and you ask for advice how you can keep it more under command. This, and all other *strong* climbers, will, some day or other, be managed like the yellow one mentioned in our "supplement," and the treatment there mentioned is the only way to lay the foundation. You must forego the bloom this year. Cut in all the stronger branches about one-half their length, and the smaller ones one-third. As your plant is quite healthy, do not report it this season, but allow it abundance of rich liquid-manure to keep it growing to the end of August, and all that time attend to this rule—every young branch, except the very weakest, is to be stopped at every other joint. We shall request Mr. Beaton to write on this more fully.

FRUITSIA EXONIENSIS (*Flora, Somersetshire*).—This, you say, is putting forth flowers before the leaves; there is no fear of its not doing well, however. It should have been pruned a little more close when you began watering it in the spring. The flowers that appear so early before the foliage were in bud last autumn, and they show how well you kept it through the winter; if the frost had killed the top of the shoots it would have had the same effect as spring pruning; such examples teach the best gardeners amongst us. Cut off four or five inches from all the shoots that showed the early bloom, and give the plant a liberal watering.

GREENER FOR BACK WALL OF GREENHOUSE (*H. H. C.*).—The best evergreen for this is *Habrothamnus fasciculatus*. You should not lose a day in sowing your kale seed.

OUTER COVER (*A Faded Lady*).—It is quite impossible at present for us to give you a plan, our price forbids it, and nothing must induce us to increase this. We have a plan under consideration which may enable us to meet your wishes.

GRASS SEED (*Brookland Gardens*).—By all means sow these immediately rather than in autumn, though much later than it ought to be for the purpose.

PEAT (*W. N.*).—You will find this defined at p. 71 of the present volume, and more fully at p. 14 of our first volume.

GERANIUM SOIL (*Ibid*).—Equal parts of turfy loam and rotten stable manure, heaped together, turned, and stirred repeatedly together for 12 months, makes an excellent basis for a geranium compost. When used for potting, two parts of this mixture to one part of leaf-mould, with a little lime rubbish and rubbly charcoal.

TOP-LAYING (*R. M.*).—From circumstances beyond your control you have been obliged to postpone laying turf until now, and it has been much broken. Your best plan will be to insert the pieces with the dibble as closely together as you can, so that they are put equally thick over the whole space; sow over it grass seeds, and then roll it smooth. This mode is called "inoculating" with grass.

SALT AND WATER (*P.*).—We never recommended this to be poured over cabbage-plants attacked by caterpillars. Hand-pick them every day, and you will have none remaining the third day if you are careful.

ANT'S NESTS ON LAWN (*W. W.*).—Heap over them some refuse lime from the gas works. It will turn the grass brown for awhile, but this will recover its green colour.

CALENDAR FOR JUNE.

GREENHOUSE.

AIR. Give abundance of air with all possible freedom; bring all but the tenderest plants out of the house, and place them at first in a very sheltered situation. **CAMELLIAS** and **CHINA AZALEAS** should now have more than greenhouse heat till they finish growing and set their flower-buds. **CUTTINGS**, as last month. **DRESSING**—keep all plants in a dressy state this month by pinning, stopping, and tying. **EARTHING**—give fresh earth to surface soil, to pots that do not require a shift soon, as that portion is now soon exhausted by constant watering. **GERANIUMS**, the earlier cuttings of these are now made the finer plants for next year. **PRUNING**, this now consists chiefly in stopping young growths. **INSECTING** of *Jasmines*, *Oranges*, &c., may now be performed, but not *Camellias*. **LEAVES** are the lungs and stomach of plants, and as susceptible of injury as our lungs, therefore pay particular attention to keeping them clean from insects and all extraneous matters this month, being the height of the growing season. **LAYERS** of many woody plants may now be made. **LEMONS**, either in bloom or in fruit, give liquid manure to once a week, and, if fruit is an object, thin their blossoms, and dust those left with the pollen to insure impregnation. **RAIN**, if excessive, or long in continuance, remove the greenhouse plants to half under-shelter. **SEEDLINGS**, attend to, as they now soon smother each other if left to themselves. **SHIFT** fast growing plants, and for the whole month let it be a standing rule that no plant is to want for anything the cultivator can do for it in the shape of potting, watering, shading, training, tying, and cleaning. **D. BEATON.**

FLOWER GARDEN.

ANEMONS, take up as leaves wither; dry and store. **ANNUALS** (*Hardy* and some *Tender*), plant out to remain, in showery weather best; some (hardy) may be sowed, b. **AUTUMNALS**, continue shading; plant offsets; prick out seedlings. **BASKETS** or clumps, form of greenhouse plants. **BENJAMINS** and *Benjamins*, if established, thin box edgings clip. **BULB—*ROOTS* (*Tulips*, *Jonquils*, &c.), take up as leaves decay; remove offsets from; dry and store; may trans-**

plant some, or keep until autumn; (*autumn flowering*), as *Colchicums*, &c., take up as leaves decay, separate offsets, and replant, or not, until end of July. **CARANTIONS**, in bloom, attend; aid the bud-pot to stand with a pair of narrow sharp-pointed scissors; hand-pick buds, to prevent bursting, with Indian-rubber rags, or tape, and water every second day; tie to supporters, &c.; prick out seedlings; make layers; pipe. **CORYSANTHEMUMS**, plant out to layer next month. **CYCLAMENS**, transplant. **DARLINS**, finish planting out, b. **DARSS** the borders assiduously; need no more stumps; a gardener's character. **FRUIT**—*ROOTS* *Peregrina*, propagate by cuttings of flower-stalks; shade and water. **FLOWERING PLANTS** generally require training and support. **GRASS**, mow, roll, and trim edges. **GRAVEL**, weed, sweep, and roll. **HERGES**, clip, e. **LEAVES** and stems decaying, remove as they appear. **LACTUCA SATIVA**, apply occasionally to all choice flowers. **MEXICOTTE**, plant out; sow, b. **MIMULUS**, plant out. **PEONIES** (*Chinese*), water freely with liquid manure, or they will not flower finely. **PINK SEEDLINGS**, prick out; make layers. **PININGS** (or cuttings) of *Carantions* and *Pinks* may be planted. **POTTER FLOWERS**, dry, stir earth, and water regularly. **RANUNCULUSES**, take up as leaves wither, dry and store. **ROSES**, bud, lay, and inarch; fumigate with tobacco to destroy the Aphis or Green Fly; *Roses* out of doors, wash with tobacco-water. **SALVIA PATENS**, pinch down centre stem to make it bushy. **SEEDLINGS** of *Ferocals* and *Benjamins*, transplant. *Sedum* (*pipe*), plant in dry weather. **SEED VIOLETS**, remove, to prolong flowering. **WATER**, give freely and frequently to all newly moved plants, and to others in dry weather; early in the morning or late in the evening is the best time. *Brompton Stocks* and *Moss's Intermediate* should be sown on a north border. They will require to be noted in September, and sheltered in a cold pit or greenhouse during the winter. Peg down *Salvias*, and, for a time, until the layers are rooted, cut off the flowers. **VERBENAS**, peg down to cover the beds sooner; put in cuttings of new kinds to get strength for winter. **TULIPS**, continue to shade to prolong the bloom, b.; towards e. expose them to full sun to ripen the bulbs; take off the leaves during the same purpose. **SLIPS** of *Double Wallflowers*, *Sweet Williams*, and *Rocketts*, put in, either under hand-glasses or under a north wall or low hedge. **T. APPELEY.**

ORCHARD.

HAND-PICK caterpillars from all fruits carefully, b. **DISBUR** all fruits in a trained state progressively through the month. **THIN** out rival shoots in general. **STOP** or pinch all over-luxuriant shoots from *Peaches*, *Plums*, *Pears*, *Apricots*, &c. **INSECTS**, watch carefully, and apply the necessary preventives with vigilance throughout the season. **FRUIT** from *trained trees* where crowded, cut off the newly planted trees or those in a weakly condition, b. **WATER** newly planted trees, or those requiring assistance, through the month if dry. **APRICOTS**, hand-pick frequently for the caterpillar; thin out fruit for tarts, b. **PEARS** on walls, thin where too thick, e. **PEACHES**, thin at all times, if too thick, thin through the month. **VINES**, stop and regulate, b. **FIGS**, thin out liberally, b.; stop the young shoots rather generally, e.; water if dry, e. **RASPBERRIES**, thin out suckers, b. **STRAWBERRIES**, water freely, b.; put straw or litter beneath leaves, b. **ALPINE STRAWBERRIES** from runners, pick away all early bloom. **GOOSEBERRIES**, thin out for bottling, m. **CUTTINGS** of *black watery wood*, e. **R. EBBINGTON.**

KITCHEN GARDEN.

ALEXANDERS, earth up. **ARTICHOKES**, weed, &c. **ASPARAGUS** *Reus*, clean, &c. **BASIL**, plant. **BEANS**, plant, hoe, &c., advancing. **BIG** *beans*, thin, &c. **BORICOLE**, plant, sow, b., prick out. **BROCOLI**, sow, b., prick out. **CABBAGES**, sow, advancing. **CARROTS**, plant, earth up, &c. **CAPSICUM**, plant, b. **CARDOONS**, thin and plant out. **CARROTS**, thin, &c. **CALIFLOWERS**, prick out; seedlings, earth up; leave for seed. **CELERIAC**, plant. **CELERY**, sow, b.; plant; earth up advancing. **COLEWORTS**, sow for plant. **CORIANDEUR**, sow. **CRESS** (*American*), sow, *var.* plant. **CUCUMBERS**, sow, b., plant, b.; in forcing, attend to. **EARTHING-UP**, attend to. **ENDIVE**, sow, b., plant. **FENNEL**, plant. **FINOCCHIO**, sow; earth up advancing crops. **GARLIC** is fit for present use. **HERBS, dry, and distill. **GATHER** *Jasmin*, *var.* *advancing* crops. **CROCKERS**, hoe, &c. **KIDNEY BEANS** (*dwarf*), sow; (*runners*), attend to. **LEERS**, thin, &c., transplant, e. **LETTUCE**, sow, plant, &c.; leave for seed. **MELONS**, plant out. **MINT**, plant. **ONIONS**, thin, &c.; transplant into deficiencies. **PARSLEY**, sow; (*Hamburg*), thin. **PARSNIPS**, thin. **PEAS**, sow, attend to advancing crops. **POMPIONS**, plant, b. **POTATOES**, hoe, &c. **RADISHES**, sow. **RANFION**, thin. **SAGE**, plant. **SALSAFY**, thin. **SAVOYS**, plant, prick out. **SCORZONERA**, thin. **SCURVY GRASS**, sow. **SEEDS**, attend to and gather. **SMALL SALADING**, sow. **SPINACH**, sow, thin advancing. **STIR** ground between crops, in rows, &c. **SUCCEVY**, sow. **TARACON**, plant. **THINNING**, attend to. **TOMATOES**, plant out, h. **TURNIP CABBAGE**, sow, plant. **TURNIPS**, sow, thin advancing. **WATERING** and **WEEDING**, attend to. **WORMWOOD**, plant.**

Cutting *Jasmin* should cease this month, as other superior varieties produce hereof, &c., and in some cases the plants should cease, because the more you cut this season the less you will have to cut next season. Cover the beds with salt, so as to be perceptibly white, once during this month.

WEEKLY CALENDAR.

M D	W D	JUNE 7—13, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
7	TH	Corpus Christi. Nightingale's song ceases.	Red Centaury.	16 a. 3	11 a. 8	9 15	16	1 31	158
8	F	Common Honeysuckle flowers.	Moneywort.	46	12	9 59	17	1 20	159
9	S	Dagger-moth appears.	Berberry.	46	12	10 37	18	1 9	160
10	SUN	1 S. APT. TAIN. Silver Y moth appears.	Bastard Acorus.	45	13	11 12	19	0 57	161
11	M	ST. BARNABAS. Common Wallflower flowers.	Midsummer Daisy.	45	14	11 41	20	0 45	162
12	TU	Trin. Term. e. Redbreast's 2d brood hatch.	White Dog Rose.	45	14	morn.	21	0 33	163
13	W	Small Blue Butterfly appears.	Garden Ranunculus.	44	15	0 8	22	0 21	164

CORPUS CHRISTI (Body of Christ) is a festival first instituted by Pope Urban the Fourth in the year 1264, and still celebrated by Roman Catholics. Various reasons have been assigned for its institution, the least objectionable of which is, that it is to celebrate the blessings conferred upon mankind by the sacrament of the Lord's Supper. This festival is always on the Thursday next after Trinity Sunday, and was, at one time, a day of some consequence in the conduct of our legal affairs: for, in the reign of Henry the Eighth, Trinity Term was directed by statute to begin on the day after this feast "for ever." Words endeavouring to render a human law immutable, the vanity of which has been shown by its subsequent alteration.

ST. BARNABAS, although not one of the twelve chosen by our Lord, is spoken of as one of the Apostles in the Scriptures (Acts xiv. 14). From the same book of Holy Writ (iv. 36) we learn that he was a Levite, native of the Island of Cyprus, and that his name originally was *Joses*. He received the name of Barnabas, "which is, being interpreted, the son of consolation," probably because, in the hour of the other apostles' extreme need, "having laid, he sold it, and brought the money and laid it at their feet." We know that he afterwards accompanied St. Paul as a preacher of the gospel; and that when he separated from him he went to evangelize in his native island. The time and manner of his death are not certainly known. There is an "Epistle" extant which is generally believed to have been written by him.

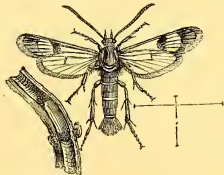
PHENOMENA OF THE SEASON.—Proceeding with our notes upon the parts of a flower, we will commence with its outermost covering—the calyx, the cup or outer wrapper. The green rough skin cov-

ering the flower-bud of a poppy, which splits into half-egg-shaped pieces when the flower blooms, is an example of the calyx. It is not absolutely necessary for a flower to have a calyx, many being without one, and we will take as a familiar example the tulip. This has no wrapper over its beautifully coloured petals, but some botanists consider these petals are the calyx, and that the tulip has no petals. One of the most marked of calyxes is the cup of the acorn, though other botanists will not admit that it is one. Another calyx, which most of our readers, probably, have considered as really petals or flower leaves, is the beautiful crimson or pink, according to the variety, outer covering of the flower of the fuchsia. In no case can we consider the calyx as of no other use than to cover and protect the inner parts of the flower; for it resembles in structure the leaves, and, like these, takes carbonic acid gas from the air and returns to it oxygen. It is true that sometimes, as in the poppy, it falls when the flower bursts it and opens, but that is no proof that it did not help to nourish the petals and other parts during their early growth. In most plants the calyx continues until the seed is ripe, and in some, as the Winter cherry (*Physalis alkekengi*), it not only remains leafy but increases in size. From these, and from other circumstances, we have no doubt that the calyx is of use for preparing sap to nourish either the flower or the fruit during some stage of its growth, or to aid in strengthening the stalk in proportion to the weight of the fruit it has to sustain. In some cases it has another use, for it remains bearing a silky parasol-like crown, helping to disperse far and wide the seed to which it is attached. Familiar instances of this are furnished by the dandelion and the thistle.

INSECTS.—Every one acquainted

with old gardens must have frequently noticed that one or more of the branches of the currant-trees teeming them have suddenly withered and died without any apparent cause. In such cases, if the wood of the branch be split down the centre, the pith will be found all consumed, the tube where it had been blackened, and nothing remaining but the excrements of a caterpillar, which may also be caught at its work of destruction if the examination is made so soon as the branch first shows symptoms of withering. This caterpillar, fleshy, whitish, with four yellowish brown spots near its head, is the larva of the Currant Sphinx (*Trochilium tipuliforme* and the *Sphinx tipuliformis*, *Sesia*, or *Egeria*, or *Bombecia tipuliformis*, and *Bombecia tipuliforme* of others).

The parent moth is beautiful, and may be seen at the end of May and early in June during hot sunshine, either settled on the leaves of the currant, or flying around the flowers of the syringa and lilac. It is about three-quarters of an inch across the wings when these are quite opened; the prevailing colour is bluish black, with various parts yellow; the antennae black; the breast with a yellow line on each side; the abdomen, or lower part of the body, has three yellow rings round it in the females, and four in the males; the fore wings are barred and veined with black; it has a brush of fine scales at the end of its abdomen, which fan it out as it pleases. The red, white, and black currant, and, we think, the gooseberry, are all liable to its attacks. It lays its eggs at this time in openings of the bark of a young shoot, and the caterpillar immediately it is hatched penetrates to its pith, and eats its way down this until it reaches the pith of the main branch. The only secure measures are to kill the moth whenever seen, and to split open the withered branches and serve the caterpillars similarly.



The following, from the head gardener of an establishment in Kent, is only one of very many letters now before us, all urging the same topic as deserving our especial advocacy:—

"I can bear testimony to the value of THE COTTAGE GARDENER as an agent of improvement amongst the working classes, and I think you would greatly

forward the end in view if you would give the aid of your pen to the advocacy of Horticultural Shows for Cottagers. No one can over-estimate the value of such societies, so greatly do they improve both the moral and social condition of the working classes. It is astonishing to see what a revolution is caused in any village when once it has its annual shows, and it is also surprising to see the excellent crops of

vegetables that are produced on small gardens which previously to the society being formed bore nothing but weeds.*

We can bring a hundred testimonies to the same most gratifying and most important facts. Then, surely, the establishment of such societies requires no advocacy, for such results, with a trumpet tongue, summon every one on to aid in arranging institutions so fraught with benefits to those to whom we are more indebted for food and raiment than to any other class of society.

As examples are much more influential than precept, and as for many years we have been earnest pleaders for the general establishment of VILLAGE HORTICULTURAL SOCIETIES, we will devote our allotted space to-day to a history of one now flourishing at Pytchley, in Northamptonshire.*

This village society has been established 12 years, and is going on with abundant success. By "success" we do not mean merely either that its funds are more than equal to its expenditure, or that its meetings are well attended by the wealthy and the gay, but we mean that it has secured also these gladdening consequences, "The gradual improvement which has taken place during the last 12 years in the comforts, respectability, and general habits and character of the cottage population of Pytchley, affords encouragement for the establishment of similar societies in other villages."

Pytchley is but a scattered village in an agricultural district; the parish contains less than three thousand acres, and the land "is a mixture of good and bad pasturage, tillage, and copse; of gentle slopes, some towards the sun and some away from it." The number of its inhabitants are but 611; "it has no resident squire, no inhabitant who keeps a gardener, nor until last year (1848) any artificial garden-heat beyond that under a few cucumber frames." Much less has it any of Edgington's marques, or any baronial hall in which the gatherings of kitchen-garden stuff, orchard fruits, and border-flowers can be spread out for view, but "the place where the shows are held (the only suitable place in the parish) is the village school-room, 20 feet square by 12 feet high."

Immediately after school, on the evening of the day before a show, the stages are raised, and the festoons, arches, and other devices, are decorated with flowers, and fixed in their places. The show day, of course, is a holiday to the scholars, and then and there are exhibited all the best that village gardening can produce in its season. "Fruits and vegetables usually grown for food," "Open-air flowers," "Greenhouse or Room plants," "Bees," "the Neatest

Cottage," and "Children's Nosegays, of wild flowers only," are among the subjects for which prizes are offered, and the result shall be told in a letter we received from the kind-spirited rector himself:—

"The cottagers grow twice as much cabbages, potatoes, and onions, from the same little patch, and of a quality many times superior, to what they did six years ago. The flowers are much more numerous in every cottage; the beer-house less frequented; the church better attended; the Sunday more decently kept; the cottagers more comfortable. Many a poor man who formerly never tasted rhubarb, for instance, has his rhubarb dumplings for supper now in May and June; he has his onions and leeks to his bread and cheese at lunch; he has his salad and radishes for Sunday dinner, and often for supper, and has a large mess of kidney beans, and broad beans, and marrowfat peas for his children's dinner; and you may usually mark the members of our society by their general steadiness of conduct, and the air of comfort in their cottages as compared with many of their neighbours. The farmers, too, enjoy their share of the competition, and have a delight in promoting the comfort of their poorer neighbours, and in leaving their prize things for sale at night. The people are pleased at our endeavours to do them good, and we generally succeed in making the day of competition one of happiness. You would not imagine what English *wild* flowers are, unless you have seen them in such nosegays as clever tasteful children can make up; I certainly never did. I am anxious not to ascribe to merely external matters a greater importance than they deserve, but certainly such a carrying out of the parochial system as little village institutions of this kind afford the means, has the happiest effect upon the comforts, the character, and the morals of the poor, and is a powerful aid to the clergyman in his efforts for their improvement in more important interests."

And what has been the expense—what have been the means whereby so much of unalloyed good has been achieved? The reply is before us. During the twelve years of the Society's existence the average number of members has been 75, and of subscriptions £4 8s 8d a year. The total number of specimens exhibited has been 7200, and of prizes paid 2700. The expenditure has been kept to square, on the whole, with the receipts, though not always year by year; sometimes a balance being reserved, and once or twice a small debt unavoidably incurred. The total amount of subscriptions received has been £53 4s 6d; of money taken for admission of visitors, or for fruit and vegetables given by exhibitors for the benefit of the Society, £36 10s 4d; and of donations from non-members, £29; in all, £118 14s 10d. The expenditure has been £117 15s 6d; viz., prizes paid, £63 8s 5d; expenses of shows, £11 7s 8d; purchase of stages, plates, materials, stock, printing, &c., £42 17s 5d. There have been thirty shows, at which the average exhibition of specimens has been 240, and of prizes given 90 (in money, £2 2s 3d); the average receipts at the door, &c., about 24s; the average expenses about 7s.

We need say no more, for after such details, and the unimpeachable evidence of such results, no vil-

* We recommend to all who desire a fuller account, and the necessary rules for regulating such a society, a little tract by the Rev. Abner W. Brown, and priced only twopence, entitled "The History, Rules, and Details of a Horticultural Society established in 1837, at Pytchley." It is just published by Messrs. Wertheim, Paternoster Row.

lage resident can refuse his aid to an effort to do likewise. We hope, too, that our brethren of the press will lend their help to advance the same cause, and in making more known the Rector's little tract on the Pytchley Society. We are confident in this hope, because we see that in future Dr. Lindley purposes to devote "a corner" of the *Gardener's Chronicle* to "little gardeners." We hope the *Gardener's Journal* will also thus follow in our wake, and aid in the effort—the important effort—of improving the gardening of the many.

THE FRUIT-GARDEN.

THE VINE ON OPEN WALLS.—We made some slight allusion to disbudbing the vine in our Number for May 10th. This is, indeed, the very first operation of a series, which have for their prime objects the perfect development of the principal leaves with the bunches, and the continual prevention, through the summer, of any weak or watery spray so far prevailing as to shade the principal leaves. To those unacquainted with vine culture one thing must appear somewhat strange, namely, that the vine dresser should seem to direct all his energies to the arresting of the rambling tendencies of the vine with which nature has endowed it. The process, indeed, seems of such a meddling character, that, although we are old practitioners, we still feel no small amount of astonishment at the immense capabilities which our gracious Creator has implanted in the vegetable kingdom; the capability of yielding in almost any direction to meet the wants of man, and that of recovering lost ground or impeded motions by a self-restoring or plastic power. Such power especially is possessed by the vine; and when we take into consideration its native clime, or rather climes, for it inhabits most of the temperate portions of the northern hemisphere; in Asiatic Turkey, Persia, Greece, the Morea, and on the borders of the Black and Caspian Seas; and, above all, in the highest perfection, perhaps, in Syria and Armenia; when such is taken into consideration, it may readily be imagined that any mode of culture, to be successful, must be based on the free admission of light to the principal organs of the tree. Indeed, the question of heat, although of the highest import, is even secondary to that of light; for, as a matter of proportion, the vine in Britain will bear a more diminished amount of heat than of light, at least so we think.

The vine is late in bursting into leaf. This fact alone points to the high amount of excitability requisite in order to promote germination; and, as it is late in its leafing, it is evident that the first leaves which develop themselves are the most important, as being the first to be in a condition to elaborate the true sap, which must feed the fruit of this year, and build up the fabric of the tree for future crops. Hence the severe course of "disbudbing," "thinning out," and "stopping," which we must recommend. As we are addressing ourselves to tyros in horticultural matters, we may as well explain the technical terms just named, and which, being in common use amongst practical men, must, we suppose, be tolerated; indeed, the three we allude to have the merit of being peculiarly expressive.

DISBUBDING signifies the removal of every opening

bud, at the period of leafing, which is not needed for the present year's crop, or for filling up some space on the wall which would otherwise remain bare. A system of first-rate vine culture, in the hands of a practical man, would be so complete, when the walls were once covered, that almost every shoot which did not carry fruit would be stripped off, as also, indeed, many of those which were fruitful.

THINNING OUT.—This term has hardly so decided a meaning as the former, and may at first sight appear to be the same process; it is not, however, precisely the same, for it is not deemed expedient with the vine, under ordinary circumstances, to carry disbudbing to that extent which shall supersede the necessity of all future operations in this way. A vine to be thus treated must have been trained in the most systematic manner, and must, withal, be in a most fruitful condition. This process, therefore, consists in going over the vines again about the period they commence blossoming, and then making a final selection of the shoots to be allowed to remain. Such, indeed, becomes imperative at this period; for, in the omission of it, the vines would speedily become a confused mass of shoots.

STOPPING.—This is a most distinct process altogether, as will be manifest at once. Several good results follow from this operation. In the first place, the three or four principal leaves at the lower end of the young shoots, and below and above the bunch, are by it augmented in point of size and succulency; secondly, the shoot is prevented shading its neighbours; and thirdly, it conduces to a concentration of the sap in the vicinity of the fruit.

Having thus given a definite character to these necessary operations, we come now to the main purpose of these remarks—a thorough spring vine dressing. Of course a slight disbudbing will have been carried out in most places before this reaches our readers; now, however, the process must be entirely completed. Let the trees, then, be thoroughly examined, and not a shoot left in them but what is either wanted for this year's crop or for securing against vacancies in future years. In performing this, do not suffer the vines to be crammed with shoots; thinning out is in general too niggardly performed. It ought to be borne in mind that leaf should not be permitted to overlap leaf; and, above all, that no growing spray, whether lateral or terminal, should be allowed to shade the principal leaves. Such being well understood, let the thinning out be completed at this period, and if any doubt arise in the mind as to the propriety of retaining any given shoots with a view to future successional branches, just pinch off the head to a single eye or two, and in future dressings merely prevent it from extending any further; this will nurse a bud for the next year's pruning, and prevent it doing any harm by shading.

To those who do not know what amount of bunches a vine should be permitted to carry, we would say, as a general rule, leave about one bunch to every square foot of superfluous. So much, nevertheless, depends on the strength of constitution in the individual plant, that it is not easy to lay down rules in this respect. The vine dresser must learn to distinguish between healthy trees with a safe root action, and those which are weakly or uncertain in their movements.

When the thinning out and disbudbing is accomplished, the next thing is to think about "stopping;" the latter process, indeed, has in part to be carried out with the "thinning out." As we omitted to give a description of this process in its proper place, we

may merely state that it is pinching off the ends of those shoots which are to remain, and is generally performed at one joint beyond the one bearing the bunch: that is to say, one joint and one leaf only beyond the bunch is left. In cases, however, where more walling or training surface has to be covered, as many joints should be left as may be necessary at the ensuing pruning season to cover such space. The ordinary period for stopping is about a week or so after the young bunch fairly shows what its character will be.

We have now described all that is necessary up to the present period, and we will return to the vine culture out of doors in due time.

R. ERRINGTON.

THE FLOWER-GARDEN.

ARRANGEMENT OF COLOURS.—As the lovers of flowers are now all busy planting the almost numberless varieties of plants, to make the flower-garden during the summer and autumn months a blaze of floral beauty, it may not be amiss to consider briefly how to arrange them so that their colours may produce the best effect. This, when we remember the diversity of taste and opinion, is no easy task; and, therefore, we beg the indulgence of our readers to bear with us if our ideas do not exactly coincide with their own.

Colours may be divided into two classes, the warm and the cold. *Warm colours* are scarlet, red, crimson, pink or rose, yellow, and orange; *cold colours* are blue, purple, lilac, and white. Now, if these colours are all mixed indiscriminately, without any regard to effect, though the garden will undoubtedly be variegated and mottled enough, yet the pattern will be confused, and, except by chance, there will be no breadth or depth of colour for the eye to rest upon. We shall much sooner be weary of looking upon such a scene, where every part presents the same discordant features. This was the great defect of the regularly mixed flower-border, now almost extinct in gardens having any pretension to floral taste. The eagerness with which the more modern fashion of grouping masses of colour has been taken up and followed by the owners of gardens, from the "Castle" to the "Cottage," proves that the association of colours in harmonious arrangement is felt to be a good desirable to be attained; and yet how often is this desideratum left to chance! The gardener having plants, of colours various enough in all conscience, makes an arbitrary selection; his resolve goes no further than this—"I will have this bed, scarlet verbenas; that bed, purple petunias; the other, yellow calceolarias; this little bed shall have blue dwarf lobelias; that large one, blue salvia patens; a third, scarlet salvia fulgens; a fourth, scarlet geraniums; yonder little one shall hold anthericum liliaceum, or some other white bell-flower;" and so on, till all the beds are filled with larger or smaller patches of colour; but the mixture is quite as bad and as ill associated as the old mixed flower-border.

Now, the merest tyro amongst our readers, who thinks at all about the matter, will say, this random way of laying on the colours of our flower-gardens is anything but good taste. How is it to be corrected, is the question; how shall we learn to avoid such errors? Our answer is, by studying the affinities of colours, by having a ground plan of the garden, and arranging the colours on that plan previously to putting in a single plant. The brightest and warmest colour, scarlet, may be placed in the centre or centres; the next, red or crimson, surrounding it; with a bed

or two of the less glowing colours, yellow and orange, intermixed with rose or purple. Then follow these with the colder colours of blue or purple, bringing them down to lilac and white. If this plan is followed, with some modification or softening, the whole will have that pleasing harmonious effect so desirable in garden scenery.

Contrasts may be allowed sometimes, but not too often. A small black patch on the face of a beautiful woman by contrast sets off the purity of her complexion; but if three or four are applied, they disfigure "the human face divine." The same principle applies with equal force to contrasts amongst flowers. Never imagine that one flower sets off another unless there is an approach to affinity between them. To follow the simile, the natural rose on the cheek of "the fairest of the fair" is more pleasing than the blackest patch, because it is more in harmony with the natural colour of the rest of the face. Hence the fashion of wearing patches as contrasts has disappeared, we trust, for ever. Study, then, the affinities or relations of colours, and never act to any extent upon that saying—a black will set off a white.

MIXED BORDERS.—Where there are no beds to group flowers in masses, the same principles ought to guide us in planting borders, or even shrubberies and rose-gardens; let the colours gradually, as it were, melt away into each other. What a wide field is here opened to us of pleasant labour and delight. To what a great extent the true principles of arranging colours may be carried. These principles may be applied to the arrangement of a simple bouquet of four or five flowers, as well as to the magnificent array of floral objects in the grand exhibitions at Chiswick and the Regent's Park. They may be applied quite as correctly in the flower-border or beds of the cottage as in the largest conservatories and flower-gardens of the royal or princely mansion. We might enlarge much on this fascinating subject, but other objects press upon us. Enough has been said, we trust, to induce both amateurs and cottagers to think on the effect of a better arrangement of colours, previous to filling their beds and borders with flowers, either now, if they are not planted, or hereafter, should our remarks reach them too late for this year.

RUSTIC BASKETS AND VASES.—In the last Number mention was made of these elegant and picturesque ornaments, more especially the former. This week we shall devote a few lines to the *vases*. Judiciously placed near to the dwelling-house, either on the pillars of a low wall or on pedestals, on a terrace walk, or one on each side of the entrance to the house, they are quite proper and in good taste, if not too numerous or too large in proportion to the size of the garden or house. Vases to grow plants in can be had of almost any size and form of the different manufacturers of them. Perhaps the largest stock in the kingdom may be seen at the Messrs. Austin's, New Road, Marylebone, London. Examples of various kinds and forms, from those in costly marble down to others in humble compo or cement, may be found there ready for use.

PLANTS FOR RUSTIC BASKETS AND VASES.—Having now briefly hinted at these interesting objects, as ornaments to gardens of every grade, we proceed to give a list of suitable plants, premising that they require a rich light soil, such, for instance, as fresh loam, vegetable mould, and sandy peat, in equal parts. If the peat cannot be procured, add sufficient sand to make the whole open so as to let the water from heavy rains pass freely through the drainage

and holes at the bottom of each. You must not forget those two last mentioned points of culture—the drainage, which is best made of broken garden pots and rough charcoal, mixed, and the holes in the bottom of each, to allow the superabundant moisture to escape freely. If these two points are neglected, or not properly done, the plants will in long continued wet weather soon show the effects of bad management. Their leaves will turn yellow and drop off, the flowers will be poor and scarce, and in extreme wet weather the whole will die. But if proper care is bestowed upon the drainage, rainy weather will have a beneficial effect, and the plants will flourish as healthily as their neighbours in the open borders. The plants that are proper for vases are, for one, *scarlet geraniums*, edged with that beautiful annual *Rhodanthe Manglesii*, (Mangles' Rhodanthe), with the yellow drooping moneywort (*Mimulus nummularis*). For another vase, a *fuchsia* of a drooping habit in the centre, *German stocks* of various colours around it, with the canary-coloured nasturtium (*Tropaeolum canariense*) as a drooper to hang over the edges. The next vase might have a blue sage plant (*Salvia patens*) in the centre, with *Clarkia pulchella* (pretty clarkia) next to it, edged with *dwarf fairy roses*, and a *Maurandya Barclayana* for the weeper. These are for the summer months. In early spring various other things might be employed to fill them with, such as crocuses, snowdrops, wall-flowers, saxifrages, especially *Saxifraga oppositifolia*, wall-ress (*Arabis alpina*), white and (*Aubrietia deltoidea*) purple. After these early flowerers are out of bloom they should be removed, a little fresh earth added, and the summer flowers put in. A thin coating of living green moss would be ornamental, and would preserve the roots from the too sudden changes of the atmosphere. In dry weather they will require well soaking with water once a week, and sprinkling every evening. We would remark, previously to leaving this subject, that you may, if you so prefer, fill one or two of your baskets or vases entirely with one sort of plant, such as scarlet geraniums, fuchsias, or dwarf fairy roses.

If the vases are fixtures, as soon as the summer flowers are removed you might plant in each any of the following plants, to look green during the winter: *Yucca recurva* (Recurved Adam's needle), *Y. filamentosa*, and *filamentosa variegata* (Thready, and Thready variegated-leaved Adam's needle); *Picea canadensis* (Hemlock spruce); a dwarf bushy box tree, or an *aucuba japonica*; any of which would have a better appearance than empty vases. In very severe frost cover them with an extra thickness of moss. The rustic baskets had better have the earth taken out of them, be well cleaned, and be removed during winter to some dry shed, to preserve them from the weather.

FLORISTS' FLOWERS.

TULIPS.—Before these lines reach our readers the glory of these fine flowers will be almost departed. Take care to destroy all the seed-vessels as soon as the flowers decay. This will strengthen the bulbs greatly, and will allow them all to shed their leaves equally, thus enabling the cultivator to take up all the bulbs at once. Remove the awnings to allow the sun to play fully upon the beds. This will ripen the bulbs much sooner than if they were kept covered up. By no means cut off a single leaf till it turns yellow naturally. Should some few of them continue green longer than the rest, thrust a trowel in the earth near to such, and lift them gently up so as to break off the roots, but do not lift them up so

high as to lay the bulb bare. This will prevent them drawing up any more sap, and will cause them to ripen as soon as the rest. T. APPLEYBY.

GREENHOUSE AND WINDOW GARDENING.

POT CULTIVATION OF ROSES.—Those old gardeners who used to cut their moss and cabbage roses on Christmas day would not thank our reporter for saying, in the Supplement, that this was the newest branch of our gardening; but that is little to the purpose now, when a high state of cultivation prevails everywhere in this country, and when a new class of practitioners have arisen, who are, in their turn, to be instructed in the best practices of the day.

Soil.—In treating of roses, in or out of pots, notwithstanding the great diversity characterising the various sections of the family, there is one point in which they all agree, and that is, that, from the least to the greatest, the whole require the very richest compost to grow them to anything like perfection in pots: two-thirds of the best loam that can be had, and a third of rotten manure; and to keep this compost from settling too close about their roots, about a sixth part of small broken bones or charcoal should be added.

Plants.—Roses selected for potting should have been budded low near the ground, on healthy young stocks. Standard roses, and even half standards, are awkward things in a small greenhouse. The stock and all the naked part of the bottom shoots, or what we call the collar of the plant, should not exceed more than four or five inches in height; then from three, five, or seven shoots, all of as nearly the same strength as possible, should diverge at regular distances from this collar, in order to form a compact globular bush. Plants of this description, and of two or three years of age, are always to be had in the large rose nurseries; but unless it is stated in the order for what purpose the plants are intended, one year old plants probably will be supplied, which may be a trifle cheaper; but when we consider the time and trouble necessary to form "a good head" upon them, it is cheaper in the long run to furnish ourselves with suitable plants at once. Besides, it is only where large masses of them are grown that proper selections, for particular purposes, can be made. However, when they are to be reared at home for pot culture, if they are budded low enough, that is, close to the ground, a little practice and a few disappointments will soon teach us the right way of bringing them to the desired form.

Training.—Then to begin training from the beginning, suppose we look over those that were budded last summer—and this is just the right time—we shall now find them pushing up a strong leading shoot from the bud, and in some cases two or three little weak ones trying to come up from the bottom of this leader. If the whole are left, as is too often the case, to go on as best they may for the whole season, we should find at next pruning time a very strong central branch, and a few straggling spray at the bottom not worth retaining. In that case the strong shoot must be cut down to four or five buds, in order to get as many shoots from the very bottom next season; and this large cut will form an awkward shoulder for some years. Indeed, letting well alone in this manner, is a crying evil everywhere; gardeners, nurserymen, and amateurs, are often at

fault here; and those who are beginning, for the first time this season, to nurse rose plants from the beginning, will stand a better chance of success than some of the oldest of us, if they will only attend to THE COTTAGE GARDENER, who is very particular about his roses. Who would not be a cottage gardener? or live in a snug cottage covered all over with roses? or, rather, who would not exchange a palace for such a scene in the rose season, at any rate? But I am "loupin o'er a lin."* No plant or tree that is intended for training, whatever that training may be, should be allowed to have its own way the first season—like the rose above, taken as a bad example. No, if you wish to rear a plant in the best possible health, and in the shortest time, whether it be a rose bush or an apple tree, or any other tree or bush, the proper time to begin the training is when either the bud or the graft, whichever may have been used for propagating, has made a few inches of growth, and that is just about this time with us; therefore, let us go back to one sample of a badly managed rose. It is full six inches high, and two little sprigs are struggling to rise by the side of it, all from the bud put in last season. Now is the time to plunge into the mysteries of cultivation: this beautiful strong shoot, having embryo flower buds at the top already, must be thus early stopped in his headlong career, and nipped on the very threshold of life, like many a young aspirant. By nipping off the top of this leading shoot with the fore-finger and thumb, and only leaving four joints, or buds, on the stump, we arrest the flow of the sap in that direction. But now, in the height of the growing season, the sap will not be stopped thus, but merely directed into minor channels; and the little stragglers that were panting for existence the other day are now the main channels for the arrested sap, and in three weeks they will become respectable side branches. Before that time, however, the four eyes left on the stump will push out into branches also, and so divide the sap in equal portions between them all—at least, let us hope so; but the thing is not quite so easily effected as it is to write or read about it. Now, instead of one strong leader, we have four, or may be six, shoots all springing up from the bottom, not very strong yet, it is true, but the season is still long enough before them to give sufficient strength for our purpose. Thus, by one magic nip with the finger and thumb we have gained a whole season, avoided the ugly cut we deprecated, and have laid a sure foundation for a proper distribution of the branches, so as that we may train them afterwards in any way we think best. For the rest of this season, all the attendance the plants require is to allow no side branches nor flowers to exhaust any of the sap, and to give them a good supply of rich liquid manure occasionally till the end of August. By the latter part of October they will be in good condition for potting.

Potting.—Nurserymen and gardeners pot their roses as early as circumstances will allow after the fall of the leaf, or, say, before the middle of November; but if amateurs rear their own plants as above, I think the safest time for them to pot their roses from the open ground is any time in February: they will then not only escape the hardships of a long winter but another advantage may be gained, and one that is often overlooked—a plant, no matter of what kind, should never be pruned and potted at the same time. This rule is as binding as a principle. Now, the end of October is the best time in the year to

prune roses, and also all other bushes and trees which shed their leaves in winter; and the reason for doing it so early is this—the sap is not yet at rest, and when a portion of a branch is cut off, the buds that are left will receive all of it that would otherwise circulate through that portion that was cut off. This will cause the buds to swell and get more plump before the winter sets in; and on the first dawn of spring these buds are ready to make a far stronger growth than if they were not so much charged with sap late in the autumn; but if the roses were pruned and potted in October, the great advantage of this accumulation of sap in the buds is lost. The practice, therefore, although sanctioned by long usage, is bad in principle; hence it is that I recommend February as the best time for the amateur to pot his own roses. If, however, he is to have them from a nursery, he must get them home as early as he can, as all the old fanciers who want more roses are sure to be culling out the best shaped plants before ordinary people think of what they ought to be about, and the first come is therefore sure to be the best served. It must be through this that all writers on roses, and particularly nurserymen, have put so much stress on October potting; but I say, as an old hand, that February is the best time—other circumstances being the same; at any rate it is the safest time for amateurs who rear their own roses.

I have heard or read somewhere that it is a good plan to pot roses in October and not prune them till February, on the plea that with all their branches on they would form roots in the interval. This is just that kind of plausible physiology which teaches us to make two halves of a cherry and to split straws, or which, when "taken at the flood, leads to" nobody knows where. The roots of roses will bear to be well pruned at potting; but, what is "well pruned?" you say. Just to cut off the strongest roots to six inch lengths, and if there are little fibrous ones let them alone; if you can coil them round the pot they will assist the plant till new roots are formed from the cut ones. The size of the pots must depend on the quantity of roots: the fewer the roots the smaller the pot to hold them, and the contrary. After this potting the roses are to be nursed for another whole year. They must fill the pots with roots before they are fit to bear flowers.

Plunging.—The usual way is to plunge the pots in sawdust, sand, or coal-ashes, and, in many instances, in the open ground; either of these modes that is most convenient will do equally well, the pots to be just covered with the plunging material; and to keep off the summer drought from their roots, some mulching, to the thickness of an inch or two, is indispensable. The best mulching is rotten dung, as every shower will carry down some nourishment to their roots, and every time they are watered the richness of the manure is similarly beneficial. It is also a good plan to put pieces of slates under the bottom of the pots, to prevent the roots passing through, and so getting damaged when the pots are removed.

If every thing has prospered, they ought to make good plants before the end of the season, and be fit to bloom abundantly next spring.

CHINA AZALEAS.—I must put off their after-management for another week, in order to say a few words as to the treatment of China azaleas, for which I am pressed. The more I am pushed to write about this, that, or the other kind of plant, the more I like it, if only showing that we are creating a general interest on the subject we write about, and few plants deserve more encouragement than these gorgeous azaleas.

* Jumping over a waterfall.

All that I have room for, however, at present, is to state that through the month of June the same treatment I recommended for camellias is also applicable to these azaleas, with the exception that they do not require so much shading as the camellia.

D. BEATON.

THE KITCHEN-GARDEN.

ARTICHOKE.—This vegetable requires especial attention at this season of the year. Clear away all superfluous and weakly shoots, and apply liberal soakings of good liquid manure. When the time arrives for cutting artichokes, great care must be taken not to destroy any small ones that may be shewing on the same stalks, as these will continue to grow after the principal stalk is cut, and afford a good succession. If new plantations are required this year, they may still be made by planting the strongest suckers, and shading them with sea-kale pots or green boughs.

JERUSALEM ARTICHOKE.—This useful tuberous-rooted vegetable may also, at this time of the year, be greatly assisted by continually scarifying and deeply hoeing the soil, and clearing away all suckers and weakly shoots, leaving one only, and that the strongest, to each plant. To secure an abundant crop of good tubers, the plants should be placed in the row at the distance of two feet from each other. The tubers of the artichoke are a good substitute for potatoes, and cows, pigs, and poultry, also thrive well upon them, and devour them eagerly. We feed swans, ducks, geese, fowls, pigeons, and pheasants, and indeed poultry of all kinds, occasionally, with them, and find that they like them exceedingly. With the exception of mangold-wurtzel, there is perhaps no other tuberous-rooted vegetable, or indeed bulbous-rooted either, that is capable of producing the same bulk and weight of produce as the Jerusalem artichoke; and another great advantage which it possesses is, that it may be grown for years upon the same spot of ground, and the produce, indeed, increased, provided the soil be annually well trenched, and kept afterwards loose and open by thorough surface stirrings.

ASPARAGUS.—Those plantations which have this season been cut from for the first time must now be cut from no more, or the plants will become weakened and exhausted, and a great deficiency in the next year's produce will be thereby occasioned; and those plantations that are in full production should not be cut too closely. If showery weather prevails, sprinklings of salt may be applied with great advantage, in small quantities and often, for we do not recommend extreme applications; but the present is the best time for applying the salt, and if given in moderate quantities, with other liquid manure, the effect will be most beneficial.

ROUTINE WORK.—The main crops of *broccoli*, *broccoli*, *cauliflowers* and *coleworts*, should now be planted, and a good sowing of *cauliflowers* made for autumn coming in. Full crops of *coleworts* should also be sown to secure an abundance of good strong plants for planting the spare ground, such as the pea, bean, and early onion beds, as they become cleared in the latter summer and early autumn months. Good preparations must be made for the principal crops of *celery*, and a succession of plants pricked out. *Onions*, *parsnips*, and *carrots*, should have their final thinnings; *parsley* should also be thinned, and a portion transplanted, and to the earliest and strongest plants,

soot may be applied with the greatest advantage. Indeed, soot applied in a liquid state, we find to be one of the best and most fertilizing manures to vegetation generally that can possibly be applied.

JAMES BAENES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 30.)

WHAT a variable and uncertain climate is that of our island home! How unexpected has been the severe though short winter we have just experienced; and how my poor honeysuckles have withered beneath its influence! They were just putting forth their buds, and I was counting the weeks till they would burst into bloom, when such a cutting frost and easterly wind swept over them, followed by heavy snow, that they seemed perishing, and I feared their beauty was over for the season. The last few days have been mild; some soft rain has fallen, and I find my favourites, to-day, considerably revived and strengthened. The promise of bloom, however, this year, is not so great as usual; and I fear this sudden check may weaken the flowers. The weight of the snow that has fallen, though not so deep as the falls in winter, has broken a large and graceful limb from a fine cedar. It is almost always the case when snow falls late in the spring: during winter it will lay in thick masses on the spreading boughs, and do no mischief; but whenever a spring fall has taken place, so surely has a branch given way. A few years ago, several snapped together, and, for a time, disfigured the tree. Is it that the flowing of the sap renders the wood more brittle? The severe and sudden changes that affect our gardens and all their beautiful inhabitants, "from the cedar-tree that is in Lebanon even unto the hyssop that springeth out of the wall," remind us of the mutability of all that is beneath the sun. When worldly prospects are fairest, a cloud passes over us, a heavy sorrow falls, or a cutting disappointment, that withers our hearts like the early leaf-buds, and tells us, with wholesome and merciful sternness, that "this is not our rest." It would not be good for us to learn the changeable nature of this world only from trees and flowers; neither is it enough to read it in the Book of God. We must learn it directly from the teaching of our Father; His finger points to the solemn truth, and His hand stamps it on our hearts.

This is the time for increasing heartease by cuttings, though it may be effected all through the summer. They are such rich, gay flowers, and bloom on so unweariedly, that no garden should be without them. The variety of colour in this lovely family is great, and the tints usually are strong and lively. They look best in single beds, where their showiness may be seen to the best advantage; and, if some taste is exercised in mixing the colours, the effect is admirable. They prefer a cool, moist situation, therefore the beds should be level; and, if a litle soil can be procured from the surface of a pasture, it will benefit them. This soil, with a portion of manure mixed with it, is used by the florists about Manchester; but composts are not easily obtained by ladies, and, if they are of very impatient spirit, they cannot wait till it is all mixed and seasoned, and fit for use. With a spade and a light wheelbarrow (made expressly for ladies' use), an immediate supply of soil may be obtained, which, for simple gardeners,

will do extremely well, and such alone will trouble themselves with my remarks. Always choose young shoots for cuttings; for old shoots at the end of the summer will be hollow, and not likely to throw out roots. The ends of shoots, about two inches long, are proper for cuttings, and should be cut through just under a joint. Put them in fine sandy soil, shade them for a few days, and water them freely. If cuttings are required late in the season, they must be struck in pots, and placed in a warm window to assist them in rooting.

Heartsease will sometimes be difficult to increase by cuttings; they may then be layered in fine soil, covering the wounded part with some that is nicely sifted. These plants will often have shoots that strike root themselves; these may be taken off at any time, by cutting off the offsets with a portion of root to each. Always have your pruning knife sharp and clean; a blunt or notched edge will lacerate the tender plant, and nearly pull it out of the ground by the force required to separate the shoot or branch. Always close your knife, or put it in its case, when done with; and do not let it lie open on the damp grass, or dig up weeds with it, as I have often done. Have a small pointed trowel always in your apron pocket, that you may not hastily employ your pruning knife to indulge your indolence. Another way of increasing heartsease is by throwing a double handful of finely sifted soil into the centre of a plant when it begins to spread, by this means inducing the plant to throw out roots near the surface. This must be done in June; and then, early in September, take up the plant, wash away the soil from its roots, and divide it into as many plants as it will admit of. To ensure the finest bloom, plants should be raised every year, and they should not be allowed to smother each other's stems, as they will do, because they grow so rapidly, and their luxuriance soon impoverishes the soil, which makes the flowers small; therefore, renew them often. They are easily managed, and as they bloom during nine months of the year, (those raised early in the year blooming from April to July, and so on,) they are useful as well as beautiful.

The Saxifrage is a rich and handsome flower, and the leaves are ornamental too. It enlivens the spring garden, and possesses so many varieties, that it is well worth cultivating. It is a native of high and snowy lands, both in Norway and Siberia, as also in Italy and Switzerland. It glows on the confines of perpetual snow, which cherishes its roots, and protects it through the intensity of those terrible winters, and our frosty seasons will often injure it, without its accustomed mantle. The London Pride, one of my favourites, is a member of this family, though little resembling them either in leaf or flower. The Saxifrage will bloom in valleys as well as on ice-bound mountains, and will even adapt itself to London air and smoke; thus bringing the dreary solitudes and unbroken silence of its native lands into striking contrast with the restless movement and unceasing din of our vast metropolis. What a range of thought may a "Prison plant" awaken! In telling its history, what new, and grand, and beautiful, and fearful things it speaks of! What heights and depths, what frozen desolations, dwell among "the everlasting hills!" and what snowy plains and soft rich vallies lie around them! "Mersey" rejoicing "against judgment." Surely everything that God has made echoes the song of Moses—"Who is like unto the Lord among the gods? Who is like thee, glorious in holiness, fearful in praises, doing wonders?"

PRIZE PLANTS.

LISTS of plants which took either first or second prizes at the May shows of the Horticultural and Royal Botanic Societies. (Continued from p. 109.)

AZALEA INDICA.

Azalea indica Rawsonii, B. 1		3 feet high by 3 feet diameter
" "	lateritia, B. 1, H. 1 & 2	. 4½ by 3
" "	Laurenciana, B. 1, H. 2	. 3½ 3½
" "	exquisita, B. 1	. 4½ 3
" "	precantissima, B. 1 & 2	. 3½ 3
" "	sinensis, B. 1 & 2, H. 2	. 4 3
" "	magnifica, B. 1	. 3 2
" "	variegata, B. 1, H. 1 & 2	. 4 4
" "	coronata, B. 1, H. 2	. 4 3
" "	macrantha purpurea, B. 1	. 2 1½
" "	triaphanta, B. 2	. 4 3
" "	rubra pleno, B. 2	. 5 3
" "	alba superba, B. 2	. 4 1½
" "	rosa punctata, B. 2, H. 1	. 4 3
" "	optima, B. 2, H. 1	. 4 3
" "	Gleditsia, B. 2, H. 1 & 2	. 4½ 3
" "	exquisita, H. 1 & 2	. 4 4

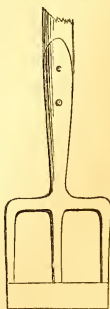
HEATHS.

Erica propendens, B. 1 and 2		4 feet high by 3½ feet diameter
" "	vassifera, B. 1 & 2	. 3 by 2½
" "	mirabilis, B. 1 & 2	. 2½ 2
" "	depressa, B. 1 & 2	. 2½ 2
" "	metulifera, B. 1	. 2 1½
" "	perspicua nana, B. 1 & 2, H. 1 & 2	. 4½ 4
" "	metulifera, B. 1 & 2, H. 1	. 2½ 2½
" "	intermedia, B. 1	. 3½ 2½
" "	denticulata macchata, B. 1	. 2½ 2½
" "	Humeana, B. 1	. 3½ 3½
" "	ventricosa coccinea minor, B. 1	. 2½ 2½
" "	tortulifera, B. 1	. 1½ 1½
" "	Cavendishiana, B. 1 & 2	. 3½ 3½
" "	elegans strata, B. 1	. 3 2½
" "	ventricosa alba, B. 1	. 3 3
" "	nitida, B. 2, H. 1	. 4 4½
" "	elegans, B. 2, H. 1 & 2	. 3 3
" "	delicata, B. 2	. 2½ 2½
" "	fastigata lutescens, B. 2, H. 1	. 2½ 2½
" "	Westphalingia hyd., B. 2	. 4½ 3½
" "	vestita var. alba, B. 2, H. 1	. 3½ 3
" "	Beaumontiana, B. 2, H. 1	. 4 3
" "	ventricosa superba, B. 1	. 2½ 1½
" "	coccinea, B. 1, H. 2	. 2½ 2½
" "	minor, B. 1 & 2	. 2½ 2½
" "	surculensis, B. 1	. 3 3
" "	prunuloides, B. 2	. 2½ 1½
" "	Hartnell, H. 1 & 2	. 3½ 2½
" "	propendens, H. 1 & 2	. 4½ 3
" "	vassifera, H. 2	. 3 2½
" "	trossula alba, H. 1	. 3½ 2½

EXTRACTS FROM CORRESPONDENCE.

DIGGING IMPLEMENT.—A clergyman, writing to us from the neighbourhood of Faversham, Kent, says:—

"They have hereabouts a very useful and economical garden tool, which I have never seen elsewhere. It is called, very appropriately, a "mule," for it is a cross between the spade and the fork. Take an old worn out fork, or, as they here call it, a "sprong-spade," and get the village blacksmith to unite the tips by welding to them a strap of steel about 1½ inch wide. Then you have a strong light spade, fit to dig any soil that is not very crumbly, as represented in this sketch. There is, or was, a spade much used in Cheshire. It was made of one piece, instead of having a hollow for the insertion of the handle, as with us; consequently it would wear down to a very stump, and be sharp to the last. Can you tell me if any such are to be procured



in these parts, or in London?" ["Lyndon's cast steel spade" is made on the above principle, and can be bought anywhere.—ED. C. G.]

EPSOM SALT TO POTATOES.—So far as I am personally concerned, your mistake of my communication regarding the treatment of potatoes is of no consequence; but I am afraid some may think me mad enough to advise the *soaking potato sets in a solution of sulphate of magnesia*. My communication had no reference to potatoes for planting, but a kind of treatment recommended by Messrs. Moberly, in their printed directions for diseased potatoes at *digging time*, to stop the progress of the disease, and to cause the decayed part to slough off after boiling or steaming. When potatoes are cut for planting, I drop every set into air-slacked quicklime, and thus cauterize the wound and stop the bleeding. I approve of drilling about 3 lbs. of sulphate of magnesia per pole on the potato ridges before earthing up. I am quite sure that the moon and planets, at certain periods of their orbits, exert a great influence on vegetation for good and for harm.—REV. WALTER SHEPPARD, *Hermite, Newbury*.

[We do not think our readers could mistake Mr. Sheppard's practice, for, at p. 189 of vol. i, it is particularly stated. We are sorry that our correspondent cuts his potato sets. There is no practice more conducive to a healthy crop than planting whole, middle-sized, potatoes; they require no cauterizing, and resist the attacks of slugs, wot, &c., much better.—ED. C. G.]

TO CORRESPONDENTS.

NAME OF PLANT (Zinnia).—The red flower of a creeper sent by you is a *Loasa*, but whether *L. Herbertii* or *L. lateralis* we cannot decide from the crushed state of the specimen. If the first named it is a hybrid, but if *lateralis* it is a native of Chili.

FUCUS LEAVES SPOTTED (F. L.).—The small brown spots are caused, probably, by your not supplying the roots sufficiently with water. The leaves have the pinched appearance indicating a deficient supply of moisture; when this deficient supply of sap occurs the leaves always die down to the requisite amount of surface. Decayed tan is better for digging into open borders than for pot-culture. Use guano as a liquid manure; if you sprinkle it dry over the surface half its virtue (the ammonia) passes away into the air. You will find what you require about *Campanula pyramidalis* at p. 258 of our first volume.

BIRDS' NESTS AND BIRDS (J. D. L.).—The publishers of this little 27-page book are Whittaker and Co., Ave Maria Lane.

PATRIS' BOOK ON BEES (A Herefordshire Subscriber).—The title of this is "The Bee-keeper's Guide," and the publishers, Groombridge and Son, Paternoster Row.

GARDEN WITH CLAY SOIL (L. W.).—Your ground being on the top of the hill, and surrounded by other allotments, is well situated for draining, and to do this will improve it very much. Cut a main drain down the slope, with side drains running into it at such depths and distances as you will find directed in our previous numbers. Your main drain will terminate, we suppose, against the boundary of your brother's garden, and you will have to be a wise man to carry it on through his own plot, leading into its side drains, as we recommend you; if he will not, dig a deep hole at the lowest edge of your plot, and let the outfall of your main drain be into it. Your house slopes and the house droppings will form excellent liquid manure, but will bear mixing with much water, otherwise it will be too strong for your crops. By "night-soil" is meant the entire contents of privies. Save your ashes until the crops are off, and then dig them in; coal slack, or dust of coal, would be very good to dig in similarly, to improve the staple of your soil. No question is named "dim" by you when put for the sake of gaining information useful to the inquirer.

WOOLLY OAK GALL (Cynips quirk).—The gall which you describe as found at Weybridge, and "like a flock of wool, with the lustre of silk, and as white as snow," is caused by one of the smallest of the Gall Flies, *Cynips quercus-maculata*. This gall has been formed whenever we have seen it, but it is rather rare, by the insect wounding the male blossom of the oak. You will find a description of the insect in Curtis's British Entomology, p. 688.

MARL (W. H. G.).—The specimen you have sent is clearly a marl, and very rich in charcoal. It differs like soda-water when even a little vinegar is poured upon it.

TORRACO AND HEMP (T. W.).—You can get the first at any tobaccoist's, and the second of any rope-maker.

SEMI-TRANSPARENT CALICO (A Somersetshire Rector).—For 50 square feet of calico one pint and a half of pale boiled linseed oil, half

an ounce of sugar of lead, and two ounces of white resin, are required. Grind the sugar of lead in a little of the oil before adding the remainder and the resin; mix and simmer them in a large iron pot over a gentle fire, and apply the calico whilst hot, but by means of a large brush. The calico should be dry, and tacked tightly on to the frame before applying the mixture, which renders it waterproof as well as semi-transparent. This is much more durable and transparent than the paper smeared over with oil noticed by T. Thorpe.

HOES—SEEDS (Thomson, Baxter & Co.).—This, with the laundry soap-suds, will make most excellent liquid manure for all your kitchen-garden crops. After much rain it will not be too strong, but in dry weather mix with every bucketful a similar quantity of water. Thanks for your information, which shall be inserted.

VELLO ACCATA (W. H.).—This will now do better out of doors. If you see any seed-pods on it, preserve some of them; they are easiest reared from seeds; but cuttings of half-ripened wood will root in mild bottom heat under a glass.

TO GROW LYS QUICKLY (Ibid.).—Give it very rich soil and abundance of soil water.

CORUS SCANDENS (Ibid.).—You ask how to overcome its shy flowering?—By age only. This month is the time to sow them to come in next year. Kept over the winter in 3-inch pots, and merely secured from frost, and planted out next May, they would flower abundantly.

ELDER PASSION-FLOWER (Ibid.).—You wish this to bloom abundantly. Train the young shoots at full length, and in October of each year cut them back to within two joints of the older branches. Cover them in frosty weather, and they cannot fail. They are free bloomers after attaining three years of age. The easiest and best way to increase the common passion-flower is by cuttings of the roots. If the cuttings are taken from an old plant in April, the strongest produce the following autumn in good soil and against a south wall.

GLADIOLI (Ibid.).—You have managed these correctly according to Mr. Beaton's directions. Yours will bloom in July.

SALVIA PATENS (Ibid.).—This, and, indeed, all the sages, require good rich soil to bloom well.

WHITE PENSTEMON (Ibid.).—This is too dull to be a fine border plant.

BOILING WATER TO GERANIUMS (J. S. L.).—A lady applies this to them by pouring it into the saucer.—Present our compliments to her, and say we are surprised to hear such bad treatment is still not defensible on the plea that the plants endure the hardship. In answer to your other query, small cheap vesicles are more available than large ones of high price.

YELLOW CYTISUS (P. S.).—There are so many yellow flowered species, that we cannot tell its name from the colour of its petals. The wood should be cut out at once, and in April the strongest of the young branches be cut back a little now, in order to keep it bushy. They like good rich soil, and plenty of water while growing.

LILY OF THE VALLEY AFTER FLOWERING IN A POT (Ibid.).—These should be plunged in a border with a north aspect, pots and all. The pots to be one inch below the surface, and so far apart that the leaves do not quite touch each other. Water them as long as they keep green, and they will bloom during many years in succession.

SPERMONE (Ibid.).—The name is appropriate, the pistil being wedge-shaped. *Eschscholtzii*.—We never considered the meaning of this unpronounceable name; it was given in honour of a Dr. Eschscholtz, or, according to your translation "in plain English," Dr. Ashwood. *Catananche*, meaning "strong incentive," is closely allied to the chicory, and is a nice border plant. *Itos* do not require a greenhouse, but Mr. Beaton will exhaust the subject.

PLANTS WITH WHITE FLOWERS FOR BRUS (H. W.).—Your garden being sheltered from the north and east, and sloping to the south, your idea of planting the white jessamine to cover a bed is perfectly feasible. Plant three of them near the centre, in rather poor soil, to check too great luxuriance of growth; peg down the strong young branches, pruning away all the small spray. These shoots will break at almost every eye, and send up short shoots up right. At the end of each of these shoots there will be produced clusters of flowers. For a month or six weeks your bed will be unique. The plants will not, however, produce a succession of flowers. We should prefer a hardier plant, and you had stated what *white clove carnation*, called "Purity." A very pretty white bed might be formed with the *Phlox amurensis*, or the *double white rachel*.

YELLOW BANKSIAN ROSE (Ibid.).—This will succeed grafted or budded on the common China rose. It is very early, and is so tender to cultivate, even when so budded, against an iron trellis. It is, however, worth a trial; and we should be glad if you try it to hear with what success. In pots, as greenhouse roses, low standard Banksians would undoubtedly do well, and flower more freely than if not grafted. They require some two or three years' growth before so desirable a free flowering state can be attained. Our editorial to-day will direct you to full information about village horticultural societies.

CONFINED GARDEN IN LIVERPOOL (Pegassus).—You say the soil in your yard is so full of insects that nothing will grow. Are you quite sure that nothing will destroy them? If you had stated what kind of insects infested your soil we might have told you what would destroy them? Cannot you remove the soil entirely and procure some clear from insects? Creepers for your walls will grow either in pots or long trough-like boxes, but they will not thrive nearly so well as in a border of good fresh earth. No kind of creeper will do so well as Irish ivy for your north wall. On the south and east, the latter being the front of your house, a variety of creepers would thrive well. Try the following honeyuckles of sorts: mountain clematis (*Clematis montana*), vine-bore clematis (*C. viticella*) and its varieties, flame clematis (*C. flammula*), white clematis (*C. integrifolia*), evergreen thorn, Chinese wistaria (*Wistaria sinensis*), and the Virginian creeper. All these will grow in almost any situation not facing the north. They will thrive moderately in large pots or square boxes, either of wood or slate; but clear away the insects, and they will thrive and flower much better in the parowest border.

CHEAP GREENHOUSE (Ibid).—The cost of a structure of this kind depends, of course, upon its size. Give the size you wish for to some respectable hot-house builder near you, or even to two, and have an estimate including everything—bricks, wood, glass, and the heating apparatus. The south-east corner of your garden would be a good situation for it. Let it be heated with hot water—no other mode is half so good. You might form a very cheap but very small greenhouse outside the window of your house, in which you would thrive very well the cacti tribe. The difficulty would be how to heat it to keep out the frost. It might be done with a hot-water pipe from a boiler at the back of your bedroom or kitchen fire.

ASPARAGUS BEDS BADLY MADE (A. H.).—Four years ago you excavated the ground to the depth of four feet, and laid in three feet of horse manure, then one foot of good soil, and planted the asparagus roots, which were warranted three years old, six inches from the surface. They came up well, but the manure subsided, and the soil sank below the level of the other ground. You top-dressed yearly, and the consequence is, that now, not more than forty heads have appeared above ground out of two large beds, though the roots are alive. Our advice is to remove all the soil from the surface of your beds, until you arrive at the crowns of the roots. If you do this carefully, you will not destroy many shoots; cover the crowns about three inches deep with soil. Do not cut any more this season, but, in order to a fortnight after uncovering the crowns, give the beds a good soaking of liquid manure and salt. In the autumn, dress them as recommended at p. 38, vol. i. By this means your plants will never get buried too deeply.

PRIMROSES SAVED WITH SOOT (Tede).—It is not true that primroses are thus changed to polyanthes, but we are informed by one who has tried the experiment that their colour is changed to a dull pink. We see nothing improbable in this, for the colours of hydrangeas and rhododendrons are very much influenced by the soil in which they are grown.

VINE STOPPING (C. E. S.).—If very strong shoots, pinch them off two joints above the bunch, but, if weak, at the first joint above it. Do not let Scarlet Runners, nor any other climbers, grow before or against your fruit pears. Although they have no fruit upon them, they have to ripen their leaves for four years.

TRAINING PEACHES HORIZONTALLY (J. M.).—The plan has been often tried, and has generally failed. The reason we think is, that the sap cannot be so well equalized in this way. The peach-tree has such a tendency to grow by fits, if we may use such a term, that all possible means should be taken to prevent the preponderance of vital action in any one part. No plan has yet arisen to supersede fruit-training. If, however, you will again try the horizontal mode, lay in the leaders nearly nine inches apart, and endeavour to carry your spray from the upper side, as Seymour did.

CAULIFLOWERS DESTROYED BY A LARVA (J. M.).—The grubs which have eaten through your young cauliflower stems, and either greatly injured or destroyed them, are the larva of a crane fly, and you will find what we have to suggest concerning them at p. 61.

GERANIUM WITHOUT LEAVES (J. F. Seibergh).—Cut it down to within three or four buds of the soil, and then, according to "Aunt Harriet's plan," so fully stated by Mr. Beaton at p. 150 of our first volume. You will find at pp. 62 and 99 of the present volume what you ought to do with your *cinerarias* done blooming. Sow your *anemone* seed directly, as directed at p. 87 of this volume; and all that you require to know about the poony at p. 299 of vol. i. The lists you require are in the same volume.

CHINESE AZALEAS (R. W. Laxton).—If your viney is not too much shaded it will be an excellent place for your China azaleas to make their growth in and set their buds. As they "produce few or no flowers" with you the roots are in a bad state; shake off as much of the old soil as you can and repeat them in fresh peat, and under the vines they will recover gradually.

VERBENAS NOT FLOWERING (A Flower Lover from childhood).—Last season was not favourable for flowering verbenas in pots on a gravel walk. Try again, after the same mode, shake them completely out of the old soil in which they were watered, cut their longest shoots in half, and repeat them in large pots, using rich light compost, and after a good watering keep them in the shade till they begin to grow, then insure them to the sun, and they cannot fail. No plants are better suited for growing in large pots than the verbenas, if the body of the pots be secured from the sun by double pots, or by plunging, &c.

BUGMANSIAS (Ibid).—Your red and yellow bugmansias, which grow in winter and rest in summer, would be invaluable to some, if that habit could be established. Cut them close in June, taken up in the autumn, and in spring shake off the old dry soil and use fresh, and with good waterings they will soon turn to be summer growers.

HANDY HERBACEOUS PLANTS (Ibid).—To fill up the gap between spring flowers and the summer greenhouse plants none are so effective as the hardy annuals, of which we shall speak more particularly next August, that being the time for sowing them for next season.

SOIL FOR AMARYLLIS (G. T. Dale).—You are quite right. The whole milder of amaryllids should be grown in good strong loam without any mixture. No one knew them better than the late Rev. Dr. Herbert, and that is what he always recommended for them. *Aspidistra Douglasii* is not yet in the hands of florists.

CALAMPELIS SCABRA (W. S.).—This will not do much good this season if sown now, but any time this month you may sow it to procure plants for next year, and it is best to treat it and the *Maurandia* as biennials. As a general rule, the colour, habit, and phanerophyte, and, indeed, all seedlings, ought to be "pricked out," that is, shifted from the seed-pot as soon as they can be handled. You had no cause to apologize for "multitudinous inquiries;" it is just what we want, as the more we know of the wants and wishes of our subscribers the more we are able to be of use to them, which is our chief aim.

VINE-LEAVES DYING (Abbatto).—All the leaves of a vine in your greenhouse were withered one morning and the house smelt sour,

though the evening previously they were in full vigour.—Such a total decay, and as often arises in the same house are still healthy, suggests that, from some cause, the roots of the withered vine have suddenly failed. Open the ground and examine the roots.

WOOLPILE (J. J.).—Gas lime will destroy them and drive them away if strewn thickly over their haunts. They are very destructive to cucumber and melon plants by eating off the outer bark. Two boards or tiles kept one-eighth of an inch apart in the frames, make an excellent trap, which should be examined every morning. A mole or two in the frame will rapidly thin them, but if these much-abused animals are introduced you must keep a saucer of water in the frame. In No. 7 you will find directions for making a *mushroom bed*. The temperature of your *cucumbers* and *melons* beds, when the fruit is ripening, should range between 55° and 70°.

POTATO MEABAIN (J. S. Eeenden).—If this disease has attacked your Ash-leaved kidneys you cannot do better than tread the soil firmly over the roots and close up to the stems, but do not injure these, much less pull them up. As soon as the stems turn yellow naturally dig up the crop and store the tubers under a shed in layers, with earth between each layer.

OLD NEGLECTED GARDEN SOIL (R. Brimer).—Trench your garden throughout three feet deep all over, turning the top spit down to the bottom. As you have a gravelly subsoil, this will render drainage less necessary, and will get rid of a great mass of weeds. Still many will come up for a year or two, and your only remedy is an untiring use of the hoe, coal-extractor, and hand-weeding. Above all things never let a weed seed.

OLD FIELD SOIL (M. B. B.).—This, which you say has six inches of soil resting upon clay, is a tough encounter for you. You must drain it thoroughly; pare off the sod, and have it piled into a heap, to be turned repeatedly, and thus have the turf converted into good manure; have a spade's depth of the clay taken from the entire surface and hurst. Spread the ashes so obtained, and the decayed sod, evenly over the field, and treaded in two spades' deep. If you will go to this expense, and, in insuring after the first year, take care to have all the coal-ashes, coal-chalk, and other porous matters you can command, dig in with the manure you give it, the field will recover from its present determination.

STEMLESS POTATOES (H. L. Biggs).—The phenomenon you mention of potato sets forming a cluster of young tubers underground, without throwing up any stems, has been frequently observed, but never philosophically accounted for. It is only an excess of the habit of the Walnut-leaved Kidney to produce early tubers, small stems, and no flowers. You had better take those sets up and consume the produce, they will be of little benefit if left.

TRANSPLANTING ONIONS (C.).—Those which have come up too thick may be transplanted into gaps in the rows when of the size of a crossbill. Water them, in the evening, and repeat the operation to insure the roots but little; put the sets immediately into a puddle of earth and water, and water the holes into which you move them before inserting them. Do not bury even the end of the stem next the rootlets.

UNHEALTHY BERBERIS PEAR (Napoleon Buonaparte).—Our observations, in reply to Mr. T. A. Lockwood, at p. 81, are precisely applicable to your case.

UNCOMFAT CAULIFLOWER-BLEBS (Charles, Plumstead).—The cause of these being spreading, instead of firm and compact, arises from want of sufficient moisture to the root. Hoe the ground very frequently between the rows, and give them a flood of water every night, and of liquid manure once or twice a week. Either clay, chalk, or marl will improve the staple of your very sandy soil.

CATERPILLARS ON PEAR-TREES (A Subscriber from the First).—Time-cluster invented by the late Mr. Curtis, of Glazen Wood, Essex, is the most efficacious instrument for checking their ravages.

It is something like a very large watering-pot rose; and, being charged with lime powder, and fixed by a socket on a pole, enables the lime to be dusted over the highest branches even. Nothing but hand-picking every evening, and lime-dusting, by shaking a gauze bag full of lime at the same time, in a windward of each bed and crop, will keep slugs under. We do not know whether Epsom salt will kill them. Barilla powder would kill slugs as well as lime, but it would injure the leaves of plants. Corrosive sublimate, dissolved in water, at the rate of two ounces to forty gallons, would probably kill them, but remember it is a deadly poison, so do not put it near anything that will be eaten.

UNHEALTHY CACTUS (F. C. N.).—Treat it exactly as is directed at p. 72 of this volume, and afterwards cultivate it according to Mr. Webb's plan, determined upon by us.

LIME (A Disciple).—You need not refrain from adding this to your soil, for although it drives off the ammonia of dung if mixed with them, it soon becomes chalk when mixed with the soil, and chalk does not drive off the ammonia from the manures mentioned.

PLANTING POTS AS SHEDS (Ibid).—These when in flower, do well to shade their bloom, as we shall shew by a drawing as soon as we can find room, but they will not do well to strike paws cuttings under. Old drinking glasses do very well, for the object is to be attained in keeping a moist atmosphere round the leaves, without excluding the sun.

RHUBARB PRESERVING (Ibid).—We are told that rhubarb cut into slices as for far-making, and then treated as gooseberries are when bottled, will keep until January.

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WEEKLY CALENDAR.

M D	W D	JUNE 14—20, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.		
14	Th	Young Swallows fledged.	Sweet Basil.	44	4 3	16	8	0 32	23	0 8	165
15	F	Young Redstarts fledged.	Sensitive Plant.	44	43	16	0	59	24	0 4	166
16	S	Ivy casts its leaves.	Moss Rose.	44	17	1	26	25	0 17	167	
17	SUN	2 SUN. APT. TRINITY. St. Alban.	Monkey Flower.	44	17	1	56	26	0 30	168	
18	M	Tadpoles fore-feet seen.	Horn Poppy.	44	17	2	30	27	0 43	169	
19	Tu	Meadow Brown Butterfly seen.	Sweet Rocket.	44	18	3	10	28	0 56	170	
20	W	Q.VIC.ACCESS. Young Greenfinches fledged	Doubtful Poppy.	44	18	4	1	29	1 9	171	

ST. ALBAN, notwithstanding the mist raised around his memory by the miracles assigned to him and to his relics by Roman Catholic writers, certainly existed, and was one of the earliest martyrs in the Christian cause who suffered in England. It is usual to consider him as actually the first of such sufferers, and, consequently, he has been styled "the Proto-martyr," and "the St. Stephen of England." He was born at Verulam, near the place where St. Albans, in Hertfordshire, now stands; served in the army of Diocletian, returned to his native place, was converted to Christianity, and was there beheaded, during the great Diocletian persecution, about the end of the third century. More than four centuries after St. Alban's death, Offa, king of the Mercians, erected and dedicated a monastery to his memory on the spot where he was believed to have endured martyrdom.

PHENOMENA OF THE SEASON.—Before proceeding to remark further upon the parts composing the floral beauties so characteristic of the season, we would observe that the 15th of June is *St. Vitus's day* in our old calendars; and that an opinion closely resembling that entertained relative to St. Vitus's day was held concerning the anniversary of St. Vitus. An old distich says that, if it rains on his day, rain will occur every day during the thirty days following. In our last Number we considered the calyx, or outermost covering of a flower, and next in order to this is the *corolla*. By this name botanists know the usually beautifully-coloured leaf or leaves forming, in general, the most showy and ornamental portion of the blossom. It is either in one piece called the *petal*, or, if in more than one, the *petals*. The delicacy of structure, the brightness of the colours, and the exquisite fragrance, which are its common cha-

acteristics, fully entitle it to the name of "the joy of plants." It has been the opinion of some, from whom it appears presumptuous to differ, that, because the structure of petals differs from that of leaves, therefore they are of no use but to protect the inner parts more essential for the production of seed. From this opinion we cannot but differ, for the petals have a vascular system, will not open unless oxygen be present in the air they grow in, and the formation of the stamens, &c. fails if they are taken away before the latter are fully grown. To these facts, all tending to shew the services rendered by the petals, may be added the fact that they sometimes become leaves, and that leaves often approximate in colour and form to petals. Moreover, we know that they form peculiar secretions, almost universally pleasing, and often highly beneficial to man. The blue of the *violet* gives the chemist a test useful for the detection of alkalis and acids; the rose petals give one of the most fragrant of oils; those of *safflower* yield the most delicate of colours; and those of the *chamomile* one of the most grateful of bitters; and those of the *marigold* find their way into the kitchen. All these varieties of secretions intimate that flowers act a more important part in the economy of vegetables than to be merely the coverings of the stamens and pistils, or even to gratify the senses of man, or to attract the attention of insects to the office of dispersing the pollen. Would the most gorgeous and most fragrant part of plants be so gifted for mere secondary purposes? Is such the subordinate and only purpose of a flower like that of *Rugifera Arnoldi*, three feet in diameter; or of the still larger and more splendid *Victoria regia*, with its hundred petals of rose hue? We think not; and we incline to the opinion that, whenever present, they act an important part in the early nourishment of the stamens and pistils.



give a drawing, shewing it of its natural size and magnified. The *Asparagus Beetle* (*Crioceris asparagi*), and *Lema* and *Chrysomela asparagi* (of some) is rather more than a quarter of an inch long; prevailing colour blue-black, upper surface of thorax red, antennae black, wing-cases edged with orange and varied with cream-coloured and blue-black marks. This beetle is found upon the stems of asparagus during the present month and until September. The eggs, which are oval and slate-colored, are fixed by one of their ends to

INSECTS.—The stems of our asparagus are robbed of their bark, and the future produce of the plants proportionately weakened, by a small, brightly-marked beetle, of which we

the young spray of the asparagus. The grubs are soon hatched from these, and are fleshy, greyish-green, gradually thickening towards the tail, marked with black spots, and having black legs. As soon as full-grown, after shedding their skins several times, they bury themselves in the earth of the asparagus-bed, forming a parchment-like cocoon, in which they remain, for the most part, throughout the winter, and the beetle comes forth from the cocoon in June. We say "for the most part," because we incline to Mr. Westwood's opinion, that some of the beetles live through the winter. One was found in our garden during the May just past, long before any asparagus-shoots appeared. Dusting the grubs with white hellebore powder destroys them; but it should be applied very early in the morning, whilst they are moistened with dew.

MUCH ingenuity has been devoted and mispent in the classification of the diseases to which organized bodies, animal and vegetable, are liable. It is mispent, because, unlike classification in some sciences, the arrangement of diseases in groups, according to our present amount of knowledge, neither aids the memory nor concentrates information. Those who

will bestow attention upon vegetable diseases—a subject every way worthy of that attention—will be benefactors to the cultivators of plants, as well as to physiologists, just in proportion as they accurately observe the circumstances preceding, and the phenomena attendant upon, the progress of those diseases. What we want at present—what we are miserably

deficient in—are the *facts* exhibited by plants in a state of disease. Knowledge on this subject can be only acquired by observation and experience; that is, by conversing with the things about us, by noticing them attentively, and by subsequent reflection. Every cultivator is capable of doing this; and if, when he found his crops diseased, he would reflect and record from what soil he obtained his seed; how, and in what weather, it was committed to the ground; its subsequent culture; the crops that preceded; the treatment of the soil; the seasons, whether wet or dry, or severe, through which the diseased crop has vegetated; with any miscellaneous observations that his own common sense might dictate, vegetable medicine would soon advance more in one year towards that state of reasoned knowledge that deserves the name of science than it has done during the last century. As observations multiply, the adjunct sciences, chemistry and botany, will contribute and apply their improved stores of information; and if few specifics for the diseases of plants are discovered, we are quite sure the causes of disease will be better ascertained; and every one is aware that to know the cause of an evil is the most important step towards its prevention.

It is some help to a research in this interesting department of knowledge to understand clearly what disease really is, and to comprehend generally whence it arises. As the health of a plant is the correct performance of its functions, disease may be defined as the disturbed, or incorrect performance, of one or more of those functions; and the mildew which destroys our peas; the curl that infects our potatoes; the ambury, or club-root, to which our turnips and other species of brassica are liable; and the shanking, or ulceration, which attacks the stalks of our grapes, are only a few of the most commonly observed instances of such disturbance. The disturbance in every instance arises either from one or more of these four causes:—1. Decline of energy in the plant arising from its old age. 2. From the attacks of parasites, whether insects or plants, which wound its vessels and suck from it its juices. 3. Its food being improper either in quantity or quality; and 4, being made to vegetate in an ungenial temperature.

We are much tempted to dwell at some length upon the various diseases arising, specially, from each of these causes; but we think it will be much more beneficial to consider, without any prefixed theory, each disease that may be brought to our notice; remembering, and begging our readers to remember, those causes whilst dwelling over the details.

We have been requested to give some information relative to the *Clubbing in Cabbages*, and we shall do so from another work in which we stated the results of our researches concerning this disease. It is peculiar to the Brassica tribe, and is known by the

various names of *Hanbury*, *Anbury*, *Ambury*, and *Club Root*. *Fingers and Toes*, a name applied to it in some parts, alludes to the swollen state of the small roots of the affected plants.

Cabbage plants are frequently infected with ambury in the seed-bed, and this incipient infection appears in the form of a gall or wart upon the stem immediately in the vicinity of the roots. If this wart is opened, it will be found to contain a small white maggot, the larva of a weevil. If, the gall and its tenant being removed, the plant is placed again in the earth, unless it is again attacked, the wound usually heals, and the growth is little retarded. If the gall is left undisturbed, the maggot continues to feed upon the albumum, or young woody part of the stem, until the period arrives for its passing into the pupa form, previously to which it gnaws its way out through the exterior bark. The disease is now almost beyond the power of remedies. The gall, increased in size, encircles the whole stem; the albumum being so extensively destroyed, prevents the sap ascending, consequently, in dry weather, sufficient moisture is not supplied from the roots to counterbalance the transpiration of the leaves, and the diseased plant is very discernible among its healthy companions by its pallid hue and flagging foliage. The disease now makes rapid progress, the swelling continues to increase, for the vessels of the albumum and the bark continue to afford their juices faster than they can be conveyed away; moisture and air are admitted to the interior of the excrescence, through the perforation made by the maggot; the wounded vessels ulcerate, and putrefaction and death supervene. The tumour usually attains the size of a large hen's egg, has a rugged, discharging, and even mouldy surface, smelling offensively. The fibrous roots, besides being generally thickened, are distorted and monstrous from swellings, which appear throughout their length, apparently arising from an effort of nature to form receptacles for the sap, deprived as it is of its natural digestion in the leaves. These swellings do not seem to arise immediately from the attacks of the weevil, for we have never observed them containing its larva.

This disease when it attacks the turnip is a large excrescence appearing below the bulb, growing to the size of both hands, becoming putrid and smelling very offensively.

These distortions manifest themselves very early in the turnip's growth, even before the rough leaf is much developed. Observation seems to have ascertained that if the bulbs have attained the size of a walnut unaffected, they do not subsequently become diseased. The maggot found in the turnip ambury is the larva of a weevil called *Curculio pleurostigma*. Marshaan describes the parent as of a dusky black colour, with the breast spotted with white, and the length of the body one line and two-thirds.

General experience testifies that the ambury of the turnip and cabbage usually attacks these crops when grown for successive years on the same soil. This is precisely what might be expected, for where the parent insect always deposits her eggs, there are these embryo ravagers. That they never attack the plants upon a fresh site is not asserted; but the obnoxious weevil is most frequently to be observed in soils where the turnip or cabbage has recently and repeatedly been cultivated.

Another general result of experience is, that the ambury is most frequently observed in dry seasons. This is also what might be anticipated, for insects that inhabit the earth just beneath its surface are always restricted and checked in their movements by its abounding in moisture. Moreover, the plants actually affected by the ambury are more able to contend against the injury inflicted by the larva of the weevil, by the same copious supply. In wet seasons we have, in a very few instances, known an infected cabbage plant produce fresh healthy roots above the swelling of the ambury.

Mr. Smith, gardener to M. Bell, Esq., of Woolsington, in Northumberland, expresses his conviction, after several years' experience, that charcoal-dust spread about half an inch deep upon the surface, and just mixed with it by the point of a spade, effectually prevents the occurrence of this disease. That this would be the case we might have surmised from analogy, for charcoal-dust is offensive to many insects, and is one of the most powerful preventives of putrefaction known. Soot, we have reason to believe from a slight experience, is as effectual as charcoal-dust. Judging from theoretical reasons, we might conclude that it would be more specific; for, in addition to its being, like charcoal, finely divided carbon, it contains sulphur, to which insects also have an antipathy.

A slight dressing of the surface soil with a little of the dry gas lime, that may now be obtained so readily from the gas-works, will prevent the occurrence of the disease, by driving the weevils from the soil. Of the gas lime we recommend eight bushels per acre to be spread regularly by hand upon the surface after the turnip seed is sown, and before harrowing. For cabbages, twelve bushels per acre would not probably be so much, spread upon the surface and turned in with the spade or last ploughing. Although we specify these quantities as those we calculate most correct, yet in all experiments it is best to try various proportions. Three or four bushels may be found sufficient; perhaps twelve, or even twenty, may not be too much. In cabbages the ambury may usually be avoided by frequent transplantings, for this enables the workman to remove the excrescences upon their first appearance, and renders the plants altogether more robust and woody; the plant in its tender sappy stage of growth being most open to the insects' attacks.

The warts or galls that so frequently may be noticed on the bulbs of turnips must not be mistaken for the ambury in a mitigated form. If these are opened, they will usually be found to contain a yellowish maggot, the larva probably of some species of cynipis. This insect deposits its eggs in the turnip when of larger growth than that at which it is attacked by the weevil, and the vegetable consequently suffers less from the injury; but the turnips thus infested suffer most from the frosts of winter, and are the earliest to decay.

FINDING it quite impossible to provide space in our present form for all the valuable information we have at our command, we have, to-day, enlarged our number to sixteen pages. We shall make this increase permanently in the course of a few weeks, and, as in the present instance, without any increase in our price.

THE FRUIT-GARDEN.

TRAINING—At this period fruit-trees in general make most rapid growth, and, unless the early formed shoots are attended to in time, much havoc is committed very frequently by storms, and most unsightly gaps in the trees may occur, which it will take considerable time to rectify. Training, therefore, of all kinds should commence immediately. The young trees should be first in course, for it is of the utmost importance to give these an early attention. There is no occasion, nevertheless, to attempt to nail or tie in all the shoots at this period; many will be either too short or too weak as yet. In fact, it is better to suffer all the weaker portion to grow for some time without training, for they will acquire more strength in their rude state. We have always been accustomed to consider early training of the strongest or most forward shoots as having a tendency to equalize the sap, for there is little doubt that a slight check is given to those shoots which are thus brought under discipline betimes.

Another *disbudding* or *pinching back* will be requisite immediately, previously to the nailing or training. Some persons, however, perform this process during the course of the training, and a good plan it is; for a judicious tree manager, during the operation, will readily perceive which shoots are really necessary for another year, and which are superfluous. All of doubtful character may merely be pinched back, especially those which we have before termed successional shoots, forming a reserve to renovate the fabric of the tree, when, through age or hard bearing, the branches shew a tendency to become naked. The remarks here offered are intended to apply principally to the old fan training; for those under the horizontal or any special mode, some slight modification of the plan becomes necessary.

It is well to go over all spur-bearing fruits as soon as possible, and endeavour to make a selection of the shoots which are to be tied down, according to the "tying down" process we have previously advised. We do not expect, however, that the shoots of proper character can be well distinguished for another week or two. As soon as they can, let them at once be tied down on the principal shoots; this being done, the points may be pinched off most of those which

will require to be cut away finally. We like this plan better than any rude attempt to strip them suddenly away; such stripping disturbs the balance of the tree too much, and is very apt to cause the embryo fruit spurs to become changed into rambling breast wood. They are, therefore, better kept as a counterpoise for awhile, or until the over-rapid and fitful growth—to which all healthy fruit-trees are liable in early summer—has somewhat passed away. In this manner they act as a kind of "safety valve" for awhile; and, by pinching off the tops merely, a slight check is given to the root action; for let every one be assured that not a leaf or a twig can be removed from a tree, when in a growing state, without a corresponding amount of influence for good or for evil to the root, so that mutilations injudiciously carried out are not performed with impunity. We will return to this subject shortly; in the meantime we must glance at most of our other fruit-trees, for all want particular attention at this period.

MULCHING.—In the first place, we would inquire, are all mulching processes duly carried out according to former suggestions in this work? If not, pray do not delay; it will be readily seen, by looking over the back pages of *THE COTTAGE GARDENER*, to what subjects it should be applied.

BLACK CURRANT.—In seasons such as this, when such fearful havoc has been made amongst fruits in general by the April frosts, any crop which has escaped should be held doubly valuable, and no pains should be deemed too much to assist in securing and perfecting it. Our present subject seems to have suffered as little as most, at least in this part of the kingdom (Cheshire); and, as it is so very liable to suffer from drought, we advise liberal waterings—if with soapuds or dunghill drainings so much the better. If the latter is used, care should be taken that, if strong, it has plenty of water added to it; let, however, a thorough soaking of some kind be applied forthwith, unless very wet weather occurs. It is astonishing what an amount of moisture the black currant will enjoy; and no fruit will better repay this labour of watering.

APHIDES, too, which are so destructive to this fruit, will in general be found to prevail in a corresponding ratio to the amount of dryness. This is rather singular, but we know it to be a fact after many years' close observation; and we also know that plenty of water, at the period the aphid commences its ravages, will check their increase amazingly. The reason we conceive to be this:—a dry period thickens and sweetens the sap, through a high course of elaboration; for the completeness or intensity of the latter process is dependent on the ratio which exists between the supply of the raw material from the root and the amount or rate of elaboration. Thus, when the root supplies, what we may be permitted to term, this vegetable chyle in an amount perfectly equivalent to, or more than sufficient for, the purpose of elaboration, the insect, although present, does not prosper; but invert this course, and we soon have the bushes smothered with the destructive insect. This is a fact not confined to the black currant alone; we have witnessed a similar course in most cases of plant-lice. Mulching is of eminent service with the black currant: indeed, if we could not obtain a slight covering annually for our crops, we would cut plenty of grass out of the neighbouring ditches and cover the ground with it, or spread a layer of fresh dug peat, if at hand, over the surface. Indeed, a slight soiling over the roots would be productive of benefit. Every one who watches the root action of this fruit must be

struck with its peculiar habits of producing a vast profusion of fibres *close to the surface* of the soil; thus evincing, we suppose, its partiality for the gases of the atmosphere, together with atmospheric humidity.

CHERRY.—As we before observed, the cherry aphid will begin to commit havoc on the trained trees. We cannot hope to dress large standard trees for this pest; but those in a course of close training, or under a dwarfing system, must have particular attention at this period. Before training the young shoots in, whether on a wall, on pales, or trained on stakes, a wash of tobacco-water should be provided. Tobacco-paper at the rate of 1 lb to six oz. of strong shag tobacco, will make one gallon of liquor, which will destroy these pests at one dipping. To be sure, the trees may be syringed over; but this requires much liquor, and is, therefore, rather expensive. We prefer dipping the young shoots, which is easily accomplished; a small bowl or basin in one hand, and the other hand occupied in bending the twigs into the bowl, will be found a sure process. The shoots must be dipped fairly overhead in the liquor.

PLUMS.—These will require the same kind of dipping as the cherry: that is to say, all superior kinds about which any interest is felt. These are liable to damage from a grub, also, which curls itself up in the foliage; such must be hunted for by hand picking.

APRICOTS.—Some of the breast wood of these, where a healthy constitution prevails, will by this time begin to assume a luxuriant character. When such is the case, and the shoot or shoots in question are not wanted for training in as leaders, the points should immediately be pinched or stopped. If this course is taken in time, embryo fruit spurs of a genuine character will be found formed at the base towards autumn. Indeed, this is the reason why overgrown apricots, in some of our kitchen gardens, are inferior in produce to those we occasionally find on the houses of cottagers in some parts of the kingdom. The latter are not pampered; their soil is moderate in point of richness; there is no digging and manuring over the roots for cauliflowers, celery, and such gross feeders; therefore, a slow, but safe, and certain root-action continues; and the tree is altogether placed in circumstances approaching those of the apricot in its native clime (the Caucasus); the only prime condition wanting being a greater amount of solar light in the aggregate. Not by any means a greater *intensity*, for our southern aspects in Britain are quite bright enough on sunny days; but the misfortune is, we have so many murky ones as a set off compared with our brethren of the south. However, what nature does for them, art must do for us; and if we cannot make sunlight, we can at least prevent gross and superfluous shoots from shading in an unnecessary degree those natural spurs which are induced by nature to produce successive crops.

STRAWBERRY.—We hope that our readers have contrived to put something under their strawberry plants, to prevent the fruit coming in contact with the soil. When clean new straw is used, it is necessary to guard against the attacks of mice, which are almost sure to be attracted to the spot by the grain remaining in the straw. Traps should be set the moment the strawberries are about commencing to ripen. If the weather is dry, they will be much benefited by another good watering, particularly the later kinds. The Alpines, especially, should receive water and high cultivation, cutting away all weak and crowded runners, and by all means keeping them free from weeds.

RASPBERRIES.—Let us beg our friends to be sure and thin away as many waste suckers as are not wanted for the next year. This benefits the crop exceedingly, as well it may. The double-bearing raspberries must only have a couple or three suckers to each stool, and these should be carefully fastened to stakes, or some other contrivance. We generally form a continuous rail, and train them thinly on this, for unless they are in a position to receive all the sunlight they will not succeed.

RED AND WHITE CURRANTS.—It is a capital practice at this period to go over all these bushes, and remove a portion of the young shoots, stopping them after the manner of other fruits. We perform this operation with the garden shears, dubbing about one-third of the tops off; and, by passing the shears round the sides, reducing the lateral spray in about the same ratio. This improves both size and flavour of the fruit, and prevents the young shoots from being broken by wind-waving.

WASPS.—Every attention should be paid to searching for the nests of these pests of the fruit-garden. We pay six-pence a nest for them through May and June, and three-pence each afterwards. Much may be done by their timely destruction.

R. ERRINGTON.

THE FLOWER-GARDEN.

ROUTINE MANAGEMENT.—This being a busy time of the year, there are many things to attend to under this head. Our cottage friends will now, as the days are long, have time to do much of pleasant work in their gardens. We would not have them, by any means, neglect their fruit and vegetables; but, at the same time, we advise them, with all our might, to attend to their flowers. As there is nothing that forwards work so much as being methodical in all operations, we would say to you, set apart a certain hour or hours in each week to the culture of the ornaments of your garden—the flower-beds and borders. These include the shrubs, the herbaceous perennials, the biennials, and the annuals, besides the florist flowers. These last-named we hope all our readers cultivate more or less, and for instructions about them we refer to the head under which they are treated upon, in some degree, every week.

THE SHRUBBERY.—At no time of the year does the English shrubbery present such a beautiful appearance as now: the laburnum, with its elegant golden tassels; the lilac, with its beautiful spikes of sweet-smelling flowers; the scarlet thorn, weighed down so as to form wreaths of lovely tinted bloom; and the guelder rose, with its balls of snow. These, together with the beautiful white Spanish or Portugal broom, the rhododendrons, azaleas, &c.—combined with their light green foliage—render our shrubberies, now, the most lovely of all sights. Who would not love to wander in such beautiful scenes as these? what minds are so callous and insensible as not to be gratified with such simple pleasures? We pity, with all our heart, such of our fellow-creatures as are so circumstanced, either by occupation or health, as to be prevented any day from contemplating and enjoying the beauties of a garden at this peculiar season of the year. The man whose heart is rightly in tune will, in the fulness of feelings, exclaim, "What a beautiful world we live in! how wise and gracious is the divine Creator of those lovely objects, and how thankful we ought to be that He has bestowed upon us so many blessings, with a capacity to enjoy and appreciate them!" The first employment of the first

man upon earth was to "dress the garden," even in a state of innocence, and it is certain he enjoyed that pleasant occupation; and the same pleasure, though in a less degree and with more labour—for, alas! we have now to root up the "thorns and the thistles"—still rewards the industrious tiller of the ground. The shrubs that we have cared for, propagated, and planted, now gratefully produce their flowers and fragrance to delight our senses, stimulating us to continue our care, to insure a continuance of those innocent delights.

At this season shrubs require but little attention: keep them cleared from weeds. Newly-planted ones will require plentiful supplies of water in dry weather. Such as have been staked should be examined, to see that the ties do not injure them by being too tight. Prune away all dead branches, cutting them down to the living part of the shrub. Remove such strong growing shoots as are likely to rob the rest of their due share of support. Should any branches be so heavy with bloom that there is danger of breaking, especially when wet with rain, prop them up with a two-pronged stake till the flowers drop.

HERBACEOUS PERENNIALS.—Several species of these desirable flowers will now require sticks to support their advancing flower-shoots. It is very necessary to apply such supports early, to secure the flower-stems from growing crooked, or being broken with heavy rains. Be in time with this as well as every other needful operation. Use the hoe and rake frequently, to keep down weeds and give a fresh appearance to the borders. Nothing shows more that you care for the well-being of your flowers than the frequent use of those necessary instruments.

Propagation.—The large families of phloxes, pentstemons, campanulas, delphiniums (larkspurs), clematis, dianthus (pinks), &c., may be propagated now by cuttings under hand-glasses, placed in a shady situation. If struck and potted separately they make fine plants for the following season. A number of plants of this description produce bottom shoots that will not flower this year: these make excellent cuttings or slips, as they are sometimes called. Take these off carefully with a sharp knife, and treat similar to the more woody cuttings; like them they will make strong plants for next year. Hepaticas, and all similar early blooming plants, may now be divided, and planted in a border shaded from the sun; they will there make fresh roots and nice tufty plants, to be planted in the borders roots in autumn, to produce their welcome flowers in the early season of spring.

BIENNIALS.—Wallflowers, Brompton and Queen stocks, Honesty, French honeysuckles, Hollyhocks, Canterbury bells, Antirrhinums, Sweet-williams, Rose campions, and sweet Scabious, may now be sown in an open situation, in moderately rich soil; sow thinly: there is nothing gained by sowing thickly. Water gently in dry weather every evening.

ANNUALS (to flower late).—Some kinds may yet be sown, such as candy-tuft (purple and white), clarkias, collinsias, eschscholtzias, gillias, kaufmannias, dwarf larkspurs, leptosiphon, nasturtiums, nemophila, ten-week stocks, and viscaria oculata. These will all flower, and make the garden look gay in the later months of the year.

There are also several kinds of perennials that at this season of the year it will be proper to sow. We will mention a few of the best. Delphiniums, heart-ease or pansies, lathyrus azureus, thunus, lupinus polypyllus, nuttallia, papaver bracteatum, peas (ever-lasting), potentillas, stenactis, phloxes, and pentstemons. Seeds of all these may be had from any re-

spectable nursery or seedsman, and will produce a great number of desirable plants.

We threw out a hint to our cottage friends, some time back, that they should form a kind of a society for raising such plants: each cottager to produce or raise one or more kinds of flowers, to exchange with his neighbour for other kinds that his neighbour has raised; and, by this means, severally to benefit each other, so as to accumulate a selection of flowers that it would be impossible, for want of space, for any cottager to command within his own garden. We trust this suggestion will be acted upon; and, as this is the sowing-time for such things, let each cottager, who has such right feeling neighbours, act upon this plan.

We need scarcely repeat, under this head of routine management, that the *lawn* must be kept regularly rolled and mown; the *edgings* neatly clipped, and all *weeds* warred against most perseveringly. We mean, especially, such weeds as docks, dandelions, plantains, broad-leaved grasses, or any other weeds that too often disfigure the grass-plots both of the amateur and places of larger pretensions.

FLORIST'S FLOWERS.

THE work of the florist increases now every day. He must care for those flowers that have done their duty this year, in order to secure their services in the season to follow, as well as upon those from which he yet expects to reap a harvest of delight, awe, and profit too, during the remainder of the season. We shall, therefore, call your attention to the following classes of flowers that must be attended to forthwith.

AURICULAS.—These gems being entirely out of bloom, now is a good season to repot them, in order to have a strong good growth to flower finely next season. Have your compost of light loam, rotten cow-dung, and decayed vegetable mould, in equal parts, with a portion of sand, about one eighth, well mixed, and in a state neither wet nor dry, ready in such quantities as your stock of plants may require. Turn out of their pots your blooming plants; remove carefully all suckers that have roots to them; lay them on one side, then shake off nearly all the old soil; trim the roots sparingly, and then your plant is ready for the new pot. Place a large crock, or broken piece of pot, or an oyster shell, over the hole of each pot; put upon this a number of smaller crocks to the depth of three-quarters of an inch; then place upon them about half an inch of the fibrous part of the loam, and upon that a portion of your compost; then with one hand hold the plant rather above the level of the rim of the pot, and with the other fill in the compost amongst the roots. Proceed thus till the pot is filled, and then gently strike the pot upon the bench to settle the soil, leaving half of the plant that it may settle with the soil. This will bring the soil level with the rim of the pot; put a little more soil around the plant, and press it gently with your fingers, so as to leave the soil a quarter of an inch below the edge of the pot at the sides, and level with it in the centre. Finish the operation neatly, and you have done the first plant. Proceed in a similar manner with the rest till all is completed. Place them upon a bed of coal-ashes, in a situation where the sun does not shine upon them after ten o'clock in the morning. The proper sized pots for blooming plants is the size known as 32s; they are about $5\frac{1}{2}$ inches in diameter, and of proportionate depth. The suckers may either be put singly into small pots, or three or four in pots of the same size as those for the blooming plants, and to be treated in a similar manner. The single pot plan is the best if you have

room to winter them in. Water them all in fine weather, and keep a good look-out for worms and slugs.

POLYANTHUS.—It is also time to repot polyanthus. They require a stronger compost than the auricula; add, therefore, one third more loam; shake them out of the old soil; take off the suckers, or side shoots, and pot them in a similar manner to the auricula. If infested with their grand enemy, the red spider, they may now very conveniently be cleansed from him. While you have the plants out of the soil look diligently for this pest, and if the least trace of his presence be perceived apply the soap water and sulphur, as mentioned in a former Number. Some recommend planting them out now in a shady border during summer, and taking them up and potting in the autumn. We cannot approve of this plan, for two reasons: first, because whatever sort of weather may come you cannot remove the plants to shelter them; and secondly, the great check they will necessarily receive at the time of potting in autumn. No: we say, treat them as directed for the auricula, and you will be safe.

CARNATIONS and **PICTEES** will now be advancing rapidly towards the flowering season. Look to the tics almost every day, or they may do mischief. If you see any too tight, cut them at once, and retie them more loosely. Thin the buds to three or four at the most. Stir the soil on the surface frequently, and let not a weed live. You may place them now on the blooming stage, if not already there. Should any suddenly turn yellow, the wireworm, that grand enemy to these flowers, is feeding upon them; and as he preys in the dark under the soil, it is difficult to find out his whereabouts until the mischief is complete. The only remedy, now, is to lay a trap for him in the shape of a slice of potato, put in the soil as near to the plant as possible without injuring the roots. The green fly will also make its appearance; dust this fellow with common Scotch snuff—it will stop his ravages at once.

RANUNCULUS.—These fine gentlemen of the floral kingdom should now be in grand health and strength. There ought to be no yellow leaves, no sickness, no flagging, but such vigour of constitution as will enable them to produce what is required of them—large rich-coloured blossoms. They will still, even if in that state, require the fostering care of their owner to bring them out in grand style. They love abundance of moisture, a soil firm without cracks, and shade on sunny days. Apply these means judiciously, and they will not disappoint you. T. AFFLEBY.

GREENHOUSE AND WINDOW GARDENING.

ROSES IN POTS.—We have seen already that the end of October is the right time to procure the best roses from the nursery for potting, but that if an amateur grows them at home, and prunes them in October, February is as good, and perhaps a better time, for him to pot them. After potting, we have also seen that they require a whole year's nursing, plunged in an open piece of ground, before they are fit to be brought in-doors, and that on the supposition that the plants were strong enough to begin with; for we must not lose sight of the fact, that roses are much more difficult to manage in pots than they are in the open borders: even gardeners, who can see at once when anything ails them, find their roses more troublesome in pots—that is, compared to open ground cul-

tivation. I mention this, because some young beginners, who can hardly make a rose bush blossom out of doors, may think that if they had it in a pot it would be all right. Just as many of that class kill their plants with too much kindness, thinking that when anything is the matter with them they are to be brought round again with liquid manure, whereas that finishes them effectually. There is no more difficulty, however, in growing roses in pots than there is in growing fuchsias the same way. Roses plunged in pots require to be regularly watered in dry weather, and, although mulched with a thick coat of rotten dung, you may water them each time with rich liquid manure. The whole secret of getting a fine healthy bloom of roses anywhere, and particularly in pots, is to allow them constantly the very richest diet; to keep them clean from insects and grubs; and to see that they are not crowded, either with too many branches or among themselves. Let every individual plant have a free open space all round it, to let in the sun and air to the very heart of it, and by the end of the first growing season the plants ought to be in good condition to flower well next spring, and with ordinary attention they will keep improving for many years, that is, provided they are not much forced. When they are strongly forced to flower much out of season, it has the same effect on them as forcing has on the hyacinth, and they take a year or two to get over the check; but to flower them six weeks before their usual time will not hurt them even the first season, and as they get old they will assume a habit of early blooming, and thus a plant that would be much weakened if made to bloom at first as early as the middle of April, will in a few years acquire the habit of blooming naturally as it were at that time, and with a little management could be made to bloom a month earlier without distressing it too much.

The great use of roses in pots is to prolong their season of flowering; to have them in bloom two months before their natural season in spring, and to prolong their season in the autumn. It is not worth while to bloom roses in pots from the end of May to the middle or end of August; and, if it were, the short time they keep in bloom would not pay for the trouble. Nurserymen and others who grow them for competition bestow much labour on those they exhibit in June and July; and one may admire this excess of diligence, and finely grown plants of any sort are admired by lovers of gardening, but, compared to an ordinary display of roses in the open ground, these summer pot-roses seem almost childish. Nevertheless, these public exhibitions of summer roses do much good, as the public can see them in their best attire; and, by comparing one with the other, a better judgment can be formed on the merits of new ones, or of those that we did not before see. The more successful growers, besides carrying off the best prizes, get up their names in this branch of commerce—and a name is everything in trade; but, for private growers in general, and especially for those in large towns, to suppose that they can grow and bloom roses in the height of summer, by merely putting them in pots, is not to be thought of; but any one with a few spare lights, or an ordinary greenhouse, and the requisite degree of perseverance, may assuredly add a great feature to his rooms, early and late in the season, by a few dozens of pot-roses. Like every other branch of gardening, the first resolution to begin a fair start is often the most difficult part of the business; and, as to failures, the best gardeners do not look for success in every

experiment; if they can but see clearly the main points of a new experiment before they begin, they risk the minor details, and every failure is as sure to instruct them as the most successful attempt. Let no one, therefore, put off the pot cultivation of a few roses, at least, from any idea that the thing is troublesome or costly. Indeed, the expense of keeping a large number of roses in pots is a mere nothing. They require no house protection from frost, and, except a few tea-scented roses, will do better from the open ground, after a hard winter, than if they were coddled up in a greenhouse.

Let us now suppose that a good selection of pot roses is got ready by the 1st of February, the pots well filled with young roots, and the shoots cut back last October according to their strength; the very strongest shoots being left from six to nine inches long, the longest to have only five buds, and all above that number to be picked out with the knife. Now, this rule is sadly neglected, but it is so essential as to amount to a principle. The usual way of pruning roses and all other bushes is to cut down to so many buds. Now, I want five buds on the strongest branch, and sometimes you may meet with half a dozen buds at the bottom of some shoots in the space of two or three inches, and if I cut down to the fifth bud from the bottom, and so on with all the other shoots on a well grown rose plant, the consequence would be that all the young branches that would come up after pruning would issue from almost the same point, and so be as thickly set together as "three in a bed," and smother each other; but by cutting the shoots at different lengths according to their strength, and afterwards taking out the buds, except those wanted to form a tolerably open head, we lay the framework or skeleton of the future plant with much greater ease. Therefore, at the first pruning for flowers the strongest shoots need not, or rather should not, be cut closer than nine inches from the old stem, one bud being left at the extremity, another near the bottom, and three more at equal distances between the two, and all the rest on that shoot to be disbudded. The second sized branches may be cut at six inches from the bottom, and three buds left on them; and the third size, if any, need not be left longer than a couple of inches, and only one bud left on them. But now let us suppose that our plants had been so well managed during the growing season as that each produced five shoots of equal strength, and well balanced as to the distances between them. In that case each would be cut into nine inches, and if the five stumps were tied out nearly horizontally, so that they would radiate from the centre like the spokes of a wheel, we should have the foundation for a bush eighteen or twenty inches in diameter at once; and if five buds were left on each of the radiating stumps as above, and each of them formed a shoot, there would be too many shoots for the diameter of the head; but that is just what I am aiming at. When the shoots were so far grown that one could see which were the most promising for blooming, one half would be stopped when not more than four inches long, and the rest left to flower; or say a dozen flowering shoots and as many spurs, for the stopped ones would be kept short all the season. At the next pruning, all these shoots and spurs would be cut in to one eye from the horizontal branches, and the same every year afterwards, unless it were intended to increase the size of the head in diameter. In this case, the shoots at the extremities of the branches must be left three or four inches in length, and brought to the horizontal position like the parent shoot.

I know very well how difficult it is for the uninitiated to carry a long description in the "mind's eye," therefore let me recapitulate. A strong shoot from a last year's bud is cut back about Midsummer to five eyes; these will break into five shoots, and no side shoots are allowed on them. In October the five shoots are to be cut down to two eyes each; and in the following February the plant is potted and nursed for one whole year, and only one shoot allowed to grow from each of the five shoots. At the second pruning in October these are left nine inches long, and four or five buds on each; from these buds the flowering branches come out every year afterwards. The nearer you come to this standard the more perfect your plant will appear; and you may calculate on three times the quantity of bloom that ordinary pruning gives. There is no secret in flowering any rose well, provided it has been well nursed the previous year, and then properly pruned. Any one who understands pruning the grape vine on the spur system will find no difficulty in comprehending this plan of pruning roses. Both flower on the current season's growth, and both may be pruned exactly alike; and, although each of them be carelessly treated, they are so generous as seldom to fail to produce a crop. Any time in February or beginning of March will be time enough the first year to introduce pot-roses into the greenhouse or pit. The latter is the best place for them, especially if a couple of lights or a single compartment could be spared for them, when they could be treated on a systematic plan—but with the ordinary treatment of the greenhouse or mixed pit they will do very well. As they are quite hardy plants, and begin to grow freely with us out of doors in April, we have only to imitate our April temperature in February to induce them to break their buds in the natural way. There is no month in the year the temperature and weather of which are easier imitated in a cold pit than April. If the weather is cold, air is admitted sparingly into the pit; when the sun breaks out, the "April showers" are easily supplied with the syringe or rose watering-pot; and the pit being closed for the night say in February, without artificial heat, will be mild enough for an April night, and still sufficiently cool. After they are in full leaf they will soon tell their own wants; but, as the spring roses are now over, and should be turned out of doors in a shady place to rest for a while, I need go no more into their culture to-day, but I shall give another paper on their culture, and the different modes of treating the different sections, for what I have said above refers to roses in general.

HYBRIDIZATION.—There is yet a wide field for the cross-breeder in the rose family, which, like many other families of plants, is much diversified in character and aspect, yet the types of the different sections are easily recognised by the experienced eye; for, although they have been already crossed to satiety, and also wrought upon by natural causes and by artificial means, their sectional character is still obvious enough, as much so as the different races of the human family. The pure Caucasian is not more easily distinguished from the Malay and Mongolian races, than are the so called *English* and *French* roses from those called the *Scotch* and *China* breeds, and so on with other sections of them. The grand secret, however, is still to be found out among the *yellow* roses, but handsome rewards do not seem to be sufficient stimulus to produce them, for the London Horticultural Society have repeatedly offered good prizes for small collections of pure yellow

roses, but, instead of responding to this call, our competitors rather flooded us with those buff roses raised in France among the tea-scented ones, and at last we were compelled to withhold these prizes altogether. I say "us," and "we," because I am a fellow of the Society; and I took great interest in the issue of the yellow rose prizes, but we were compelled to cancel them. Still I am in hopes of seeing new yellow roses in abundance, and, as we are now entered on the rose season, it is a good time to begin experiments. Try all the yellows within your reach; divest them of their own pollen before it is ripe, and apply the pollen of another yellow as soon as the stigmas become viscous on the top; where the petals interfere you may cut them off—they are of no use in the formation of seeds. I never crossed any of the rose family, and, therefore, can only give chance hints respecting the process, but it is a settled question that the flower leaves or petals do not assist either the fecundation of the embryo seeds or help to bring them to perfection after they are fertilized; and as, in the rose particularly, they are much in the way of the cross-breeder, they may be dispensed with. In a day or two I shall try a few experiments, and detail the exact process next week.

D. BEATON.

THE KITCHEN-GARDEN.

ASPARAGUS.—Those who still continue the old-fashioned cast-up-bed-and-deep-alley system, should, if possible, fill up, or partly fill up, such alleys with refuse or earth of some kind; for there is no doubt that by this objectionable system the roots of the asparagus get seriously injured during the summer months, both by drought and exhaustion. Much of the beneficial influence of watering is lost when the beds are so elevated; and we do hope to see the old system of earthed-up asparagus and deep-alleys entirely exploded. The first practical intention of such a plan, no doubt, was to cover up the plants to a considerable depth for the purpose of bleaching the young shoots; but in modern times it has become more fashionable to enjoy the natural flavour of this excellent vegetable, by dispensing with the earthing-up system and cutting the shoots in a green state. The shoots, too, produce more abundantly, and the plants remain a much longer period without becoming exhausted, when not loaded with earth to so great an extent.

Our custom has long been to sow the seed in drills two feet apart, or to plant one year old seedlings at the same distance from row to row, and the plants in the row from one foot to one foot six inches apart, taking up every alternate row the second year for forcing, and thus leaving the rows in the plantation, by the time of the cutting season, four feet apart. Every autumn, as soon as the asparagus stalks are ripe and are cut down, we apply a quantity of some kind of manure, which is allowed to remain on the surface until spring; and about the first week in March this is carefully forked in, liquid manure is applied at the same time, and also at intervals throughout the asparagus season.

CARDUONS should now be thinned and surface stirred, and, if required, some of the best plants may be moved into trenches which have been trenched deep and well manured. Liquid manure may be advantageously applied as soon as the plants have well established themselves.

CELERY.—In planting out this useful vegetable care must be taken not to plant too deeply. The

collar and seed leaves of the plants must be kept well above the surface of the soil; for disappointment, notwithstanding the best preparation of the soil, often occurs in consequence of too deep planting. Celery is a plant particularly tenacious of its heart, and more particularly of its being smothered when young.

ROUTINE WORK.—Sow now pretty liberally good dwarf cabbages for *coleworts*; green or young cabbages for the end of the summer months, and also *cauliflowers* for autumn use. The fly, which is so troublesome throughout the summer to the whole of the seedling cabbage tribe, may be expelled in some degree by drawing green elder boughs over the seed beds, and also by dusting them early in the morning, whilst the dew is on the plants, with dry wood ashes.

Successional sowings of the quickly-coming-in kinds of *turnips* should now be made; and, if dry weather prevails, those that are already up and growing will be much improved by good soakings of water, without which the bulbs will be hard and of an unpleasant flavour. JAMES BARNES.

MISCELLANEOUS INFORMATION.

PRIZE PLANTS.

(Continued from p. 122.)

THE following were in collections taking, in May, either first or second prizes at the Royal Botanic and Royal South London Floricultural Societies' exhibitions. B. stands for Botanic, L. for South London Society.

PELARGONIUMS.

Adonis, B. 1, L. 1	Maclida, L. 1
Ajax, B. 2, L. 2	Mrs. Brock, B. 2, L. 2
Arabella, B. 1 & 2, L. 1	Mont Blanc, B. 1, L. 1
Armada, L. 2	Mount Etna, B. 1
Aurora, L. 2	Muster, B. 2, L. 1
Bertha, B. 1	Negress, B. 1, L. 1
Bianca, B. 2, L. 1	Orion, B. 1, L. 1
Blanche, B. 1, L. 1	Painted Lady, B. 1
Bremblida, B. 2, L. 2	Paragon, B. 1
Brookie, B. 2	Pearl, B. 1, L. 1
Camilla, B. 2, L. 1	Pointer, B. 1, L. 1
Capella, B. 1	Prince Alfred, B. 2
Cassia, L. 1	Queen of Bourbons, B. 2
Cassiopeia, B. 1, L. 1	Redgout, B. 1, L. 1
Cavalier, B. 1, L. 1	Rosamond, B. 1, L. 1
Centurio, B. 1, L. 1	Rosy Circle, B. 1, L. 1
Cotherston, B. 2	Ruby, B. 1, L. 1
Delicatissima, B. 1, L. 1	Salmador, B. 2, L. 2
Dido, L. 2	Sir W. R. Gilbert, B. 2, L. 2
Emma, B. 2	Sylph, L. 2
Forget-me-not, B. 1, L. 1	Sylvia, B. 1
Governor, L. 1	Surprise, L. 2
Gulchima, B. 1, L. 1	Superb, B. 1, L. 1
Gustavus, B. 1	Titus, B. 2
Hebe's Lip, B. 1	Voyager, B. 2, L. 2
Luna, L. 2	Vesta, B. 2
Maid Marian, L. 2	Vesuvius, B. 2, L. 1
Marian, B. 2	

CALCEOLARIAS.

Beauty, B. 2	Fair Maid of Kent, B. 2
Chancellor, B. 2	Goldfinger, B. 1, L. 1
Coospicua, B. 1, L. 1	Jchu, B. 1, L. 1
Earl St. Germain, B. 1, L. 1	Jenny Lind, B. 2
Eclipse, B. 1, L. 1	Solitaire General, B. 2
Euchantress, B. 2	Vesta, B. 1, L. 1

CINERARIAS.

Albion, L. 1	Edmondina, L. 1
Albion, L. 1	Fleamoor, B. 1, L. 1
Annie, L. 1	Emily, L. 1
Armanda, L. 1	Gem, L. 1
Attraction, B. 1, L. 1	Huscania, L. 1
Beauty of Peckham, L. 1	Incomparable, L. 1
Cerito, L. 1	Julia, L. 1
Cleopatra, L. 1	Maid of Artois, B. 2, L. 1
Climax, L. 1	Maritana, B. 2, L. 1
Conqueror, L. 1	Matilda, L. 1
Coronet, B. 1, L. 1	Newington Beauty, L. 1
Cromatis superior, B. 2, L. 1	Pearl, L. 1
Cross, B. 2, L. 1	Penelope, B. 2, L. 1
Defiance, B. 1, L. 1	Royal Crimson, L. 1
Delight, L. 1	Vernalis, B. 1, L. 1
Duchess of Sutherland, B. 1, L. 1	

PANSIES.

Almanzor, B. 1, L. 1	Lady Sale, L. 1
Almoner, L. 1	Lord Harington, B. 1, L. 1
Archduke, L. 1	Lothian, L. 1
Aurora, B. 1, L. 1	Lacy Neal, B. 1, L. 1
Bellona, B. 1, L. 1	Majestic, B. 1, L. 1
Blooming Girl, B. 1, L. 1	Marquis of Lothian, L. 1
Candidate, B. 1, L. 1	Mrs. Beck, B. 1
Cardinal, B. 1, L. 1	Mrs. Bragg, B. 1, L. 1
Charmers, L. 1	Mrs. Hamilton, B. 1, L. 1
Climax, B. 1, L. 1	Milton, B. 1
Commodore, L. 1	Ophir, B. 1, L. 1
Constellation, B. 1, L. 1	Optimus, B. 1, L. 1
Cyclops, L. 1	Outline, L. 1
Dr. Wolf, L. 1	Pizarro, L. 1
Duchess of Rutland, L. 1	Princess, L. 1
Duke of Norfolk, B. 1, L. 1	Perfection, L. 1
Example, L. 1	Perscus, L. 1
Exquisite, B. 1, L. 1	Polynues, L. 1
Fire King, L. 1	Rainbow, B. 1, L. 1
Gem, L. 1	Supreme, B. 1, L. 1
Goliath, B. 1	White Sergeant, L. 1
Hamlet, L. 1	Wonderful, L. 1
Juventa, B. 1, L. 1	Zabdi, B. 1, L. 1

TULIPS.

Aglia, L. 1	Lavinia, L. 1
Bacchus, L. 1	Madama Vestris, L. 1
Bijoux des Amateurs, L. 1	Blason's Matilda, L. 1
Brulant Ecletant, L. 1	Meadora, L. 1
Captain White, L. 1	Newbroke Bizarre, L. 1
David, L. 1	Prince Albert, L. 1
Duke of Devonshire, L. 1	Robinson's Prince Albert, L. 1
Fabius, L. 1	Strong's King, L. 1
George the Fourth, L. 1	Triumph Royal, L. 1
Holme's King, L. 1	Violet Blondeau, L. 1
Lady Exeter, L. 1	

HORTICULTURAL SOCIETY'S SHOW AT CHISWICK.

JUNE 9TH.

THE elements were more than usually propitious on this day, and yet, as if resolved to be tantalizing even to the latest time that foul weather is compatible with fair, there were showers around London near to the midnight preceding, and a cold wind, which intimated that it came as a herald from a still more chilly birth of the atmosphere behind. However, it was tantalizing, and fear suggestive, and no more, for the morning of the 9th was as bright as any morning of June need be, and the day throughout was its worthy continuation.

The company, consequently, was very large, and never was there a gaymer, more beautiful, or more unclouded assemblage at a Chiswick fete. The military bands were in attendance as usual, and in just unison with the beauty and harmony within the gardens were the arrangements without side. All was most orderly, the police regulations being perfect, and, we believe, not a "grunt, growl, or grumble" could be heard from a visitor from the time of his entrance to the time of his departure.

Now for the more horticultural portion of our report, and we will observe generally, at the outset, that the Show was fully equal to the June Show of any other year, taken as a whole, and in many instances, especially the Heaths and Calceolarias, for example, far superior. In some other respects there was cause for dissatisfaction, and prominently among the causes for this unwelcome feeling was seeing so many plants carrying off the great prize of all, "The Certificate of Honour," most of which same plants carried off the same prize but four little weeks before at the May Show. It is true that the plants appeared not only in sustained but in improved health and beauty, and for this Mr. May, Mrs. Lawrence's gardener, deserves "credit and renown," for it is not an easy task to continue to be excellent; but still it is a cause of dissatisfaction that the same plants should have the same great prize two months following from the same Society, more especially

when it is known how much of the merit of creating the specimens belongs to Messrs. Fraser and other florists. However, the fault, if any, lies with the Society in not providing against such monopolies of prizes. It must be admitted on all hands that Mrs. Lawrence's plants form a glorious and not-to-be-spared feature of the Show, and though it may be, or may not be, that the present rules admit of the distinction of "The Certificate of Honour" being considered as a prize to the party who has the heaviest bill at a florists, yet still we should be sorry to see such a collection absent or diminished in excellence. On the other hand, considering Mr. May's skill, is it not libellous upon him to suppose that he would not still be among the foremost, even if the rules were somewhat more stringent against newly purchased plants? And is it, or is it not, a discouragement to other gardeners to be beaten by a mass of excellencies recently gathered together into one collection, and that have not been nursed through all seasons by the same skill? Be this as it may, now for the results of the day, to which we may have occasion to recur.

COLLECTIONS OF THIRTY STOVE AND GREENHOUSE PLANTS.—The same parties as at last month's show—Mr. May, gardener to Mrs. Lawrence, of Ealing Park, and Mr. Cole, gardener to H. Collyer, Esq., of Dartford, exhibited large collections, contending for the Society's grand prize of the Certificate of Honour. It was very properly adjudged to Mr. May, whose plants were in excellent condition; in fact, much better than at the last show, being more full of flower. We noted the following as being the best:—

<i>Polygala acuminata</i>	5 feet by 6 feet
<i>Stephanotis floribunda</i> , trained on a globe	6 " 4
<i>Epacris grandiflora</i> , an immense plant	7 " 5
<i>Pavetta catta</i>	4 " 4
<i>Ixora coccinea</i>	4 " 4½
<i>Leschenaultia biloba</i> major	2 " 2½
<i>Azalea Gleditsii</i> , a low bushy plant full of flower	2½ " 2½
<i>Dipladenia crassifolia</i> , a fine plant	5 " 3½
<i>Franciscus latifolia</i>	5 " 3½
<i>Tabernaemontana coronaria</i>	5 " 4
<i>Clerodendrum Kämpferi</i> , with two noble spikes of flowers	7 " 0
<i>Pimela spectabilis</i> , very fresh and full of flowers	5 " 4
<i>Chorozema ovata</i> , a difficult plant to cultivate, but shown in fine order	2½ " 2
<i>Aphelexis humilis</i> , and another species, both full of flower, and of equal size	2½ " 2½
<i>Franciscus angusta</i>	2½ " 2

The second prize, the large gold medal, was very properly given to Mr. Cole. His plants were certainly very fine, but some of them rather past their prime. He had good plants of

<i>Pimela decussata</i>	4 feet by 4 feet
<i>Aphelexis argentea</i>	3 " 3
<i>Catharanthus ossiculatus</i>	2½ " 3
This is the plant better known as <i>Vinca rosea</i> .	
<i>Aphelexis humilis splendens</i> , a fine variety with very large flowers	3 " 2½
<i>Pimela Hendersonii</i> , a neat, well-flowered plant, full of its lovely pink heads of bloom	2½ " 2

COLLECTIONS OF FIFTEEN STOVE AND GREENHOUSE PLANTS.

The First Prize, gold Knightian Medal, was awarded to Mr. Green, gardener to Sir F. Antrobus, of Cheam, Surrey. The whole of these plants were exhibited in Mr. Green's best style. We noted the following as being very fine:—

<i>Erica Cavendishiana</i>	3 feet by 3 feet
<i>Leschenaultia formosa</i>	2½ " 2½
<i>Dracophyllum gracile</i> , very elegant	3 " 3
<i>Bondeletia speciosa</i>	4 " 3
<i>Leschenaultia Baxterii</i> , a most excellent, high-coloured, handsome plant	2 " 2½
<i>Polygala cordifolia</i>	2½ " 3
<i>Azalea prestantissima</i>	3 " 2½

* All the heights are given from the surface of the soil.

Second Prize.—Gold Banksian medal, to Mr. Taylor, gardener to J. Costar, Esq., Streatham. This collection was nearly equal to that of Mr. Green's; it was a group of well-grown plants, in excellent order. We can only notice

<i>Erica Bergiana</i>	4 feet by 3 feet
" <i>Cavendishiana</i> , a healthy young plant	2 " 2
<i>Polygala oppositifolia</i>	5 " 4
<i>Allamanda cathartica</i> , a noble plant	4 " 4
<i>Polygala cordata</i>	4 " 3½

Third Prize.—Silver gilt medal, to Mr. Carson, gardener to W. Farmer, Esq., of Nonsuch Park, Surrey. A very respectable collection of large well-grown plants. The following were particularly good,
Stephanotis floribunda 6 feet by 4 feet
Allamanda cathartica 6 " 4
Mussaenda frondosa, a curiously handsome plant, with large white bracts and pure yellow flowers 2 " 2½
Ixora coccinea, a small plant with 12 fine heads of scarlet blossoms.

Fourth Prize.—Large silver medal, was awarded to Mr. Pamplin, Nurseryman, Lea Bridge.

He had a good *Dillwynia clavata*, 3 feet by 2½ feet; also *Coleonema rubra*, 4 feet by 4 feet; and *Vinca rosea* (*Catharanthus ossiculatus*), well flowered, 2 feet by 2 feet.

Fifth Prize.—Silver Knightian medal, to Mr. Pawley, of Bromley. We noted as good, in his collection, a low-trained

Azalea variegata, 1½ feet by 3 feet; also a fine *Stephanotis floribunda*, and a fine *Aphelexis macrantha purpurea*.

Sixth Prize.—Silver Banksian medal, was given to Mr. Glendinning, of Chiswick, nurseryman. This collection consisted of rather small plants, but in good flowering condition. Mr. G., if he takes care of his plants, will, another year, take a high stand as an exhibitor.

COLLECTIONS OF SIX STOVE AND GREENHOUSE PLANTS were numerous, and shown in good care. Our notices of them must be very brief.

First Prize.—Silver gilt medal, to Mr. Kinghorn, gardener to the Earl Kilmorey, of Twickenham. In this collection was a noble plant of

<i>Pimela decussata</i>	4 feet by 6 feet
<i>Epacris grandiflora</i>	4 " 3½
<i>Azalea Gleditsii</i>	2½ " 3

Second Prize.—Certificate of excellence, to Mr. Bruce, gardener to Boyd Miller, Esq. He had in good condition

<i>Epiphyllum speciosum</i>	3 feet high
<i>Aphelexis humilis</i>	3 " , by 3 feet
<i>Pimela Hendersonii</i>	2 " 2

Third Prize.—Large silver medal, to Mr. Clarke, gardener to M. Black, Esq., of Muswell Hill. Six large, even, well-grown plants, particularly

<i>Aphelexis macrantha purpurea</i>	3 feet by 3 feet
" <i>humilis</i>	2 " 2½
<i>Erica humosa</i>	3 " 3

Fourth Prize.—Silver Knightian medal, to Mr. Jack, gardener to R. Loraine, Esq., of Wallingford. He had a good.

<i>Cereus speciosissimus</i>	6 feet by 4 feet
<i>Clerodendrum affine</i> , with six spikes of flowers	3 " 3
<i>Ixora coccinea</i>	4 " 3

A prize of equal value with the last was awarded to Mr. Malyn, gardener to S. Brandam, Esq. Lee-grove, Blackheath. He had a fine *Phymatanthus tricolor* (*Pelargonium tricolor*), and a good *Leschenaultia bicolor superba*.

Sixth Prize.—To Mr. Stanley, gardener to H. Borens, Esq., near Chiselmurst. In this collection the following were well flowered:

<i>Chorozema varia nana</i>	3 feet by 3 feet
<i>Azalea indica alba</i>	4 " high
<i>Leschenaultia formosa</i>	27 " 3

SINGLE SPECIMENS SHOWING A HIGH STATE OF CULTIVATION were exhibited numerously. The following

obtained prizes:—Certificate of Excellence, Mr. Cole and to Mr. Bruce, for *Aphelexis macrantha purpurea*.

This tribe of plants are well adapted for exhibition purposes; they are very showy, easily cultivated, bear carriage well, and last a long time in flower. By referring back the reader will perceive that almost every exhibitor had one or more in his collection.

Large silver medal.—To Messrs. Veitch, for a fine plant of *Mirbelia dilatata*.

Silver Knightian medal.—To Mr. Iverson, gardener to his Grace the Duke of Northumberland, Syon House, for *Echium fruticosum*; and to Messrs. Veitch, for a fine, high-coloured specimen of *Tetradlea verticillata*.

Silver Banksian medal.—To Messrs. Henderson, of Pine Apple Place, for a magnificent specimen of *Pimelea Hendersonii*; and to Mr. Epps, of the Bower nursery, Maidstone, for *Aphelexis macrantha purpurea*.

Certificate of merit.—To Messrs. Veitch, for their pretty *Hoya bella*.

SPECIMENS OF NEW OR EXTREMELY RARE PLANTS.—There were some interesting plants exhibited under this head.

The silver gilt medal was awarded to Messrs. Veitch, for a new Escallonia named *macrantha*, with large tubular crimson flower, produced in corymbs at the end of each shoot. It was stated to be quite hardy.

Certificate of excellence.—To the same enterprising nurserymen for a new *Lisianthus* named *pulcher*. It is a tall slender plant, with a head of fine scarlet flowers.

Large silver medal.—To Mr. May for *Portlandia grandiflora*, not new, for it was introduced from Jamaica in 1775, but very rare.

Silver Knightian medal.—To Mr. Jack for *Posoqueria longiflora*, a large gardenia-like plant, with long tubular white flowers of short duration.

Certificate of merit.—To Mr. Mylam, for a new *Odontoglossum* and for *Phalenopsis rosea*, and to Mr. Glendinning for *Hoya imperialis*.

COLLECTIONS OF TWENTY EXOTIC ORCHIDS.

The cultivation of these singular, beautiful, and, in many cases, highly odorous plants, is evidently on the increase, as a proof of which we need only mention the fact that there were exhibited, at Chiswick, last Saturday, five large collections of 20 species each, four collections of 10 species each, and three collections of six each: comprising, altogether, 158 plants besides single specimens, and, generally speaking, in good flowering condition. That the company was highly gratified with the sight may be inferred from the fact that no tent was more crowded with spectators, eagerly anxious to catch a glimpse of these most interesting flowers.

Mr. Mylam, gardener to S. Rucker, Esq., was awarded the *First Prize*, the large gold medal. (We should like to know why the certificate of honour was withheld?) In his collection was a great number of really fine plants, particularly *Aerides roseum*, with six spikes; *Acineta Ruckeri*, seven flowers; *Angrocium caudatum*, six spikes; *Aerides affine*, eight spikes; *A. crispum*, three spikes; the lovely *Laelia majalis*, with three flowers; *Phalenopsis grandiflora*, strong, with nine large flowers on one spike; and a new *Aerides*, named after Lady Larpet. Indeed we might, would our space allow us, enumerate with praise every plant in this collection.

Second Prize.—Gold Knightian medal, to Messrs.

Veitch, nurserymen, Exeter. This was also a good collection, containing many fine plants, in excellent showing order considering the distance they had travelled to the exhibition. We noticed, especially, *Cattleya Mossiae*, a large mass, with 20 flowers all expanded; *Calanthe veratrifolia*, 11 spikes; *Oncidium ampliatum*, six spikes; *Phalenopsis grandiflora*, four spikes; *P. amabile*, three spikes; and *Cypripedium barbatum*, 25 flowers, all open.

Third Prize.—Gold Banksian, to Mr. Williams, gardener to C. Warner, Esq. of Hoddesden, Herts. This collection was exhibited by Mr. Williams in his usual style of excellence. Every plant showed great skill in cultivation. The only objection that could be made to the collection was a deficiency of the rarer kinds of orchids. This, however, will be supplied in time, and then we shall see Mr. Williams' plants come as often first as his competitors. This is a principal good that such friendly competition will lead to, even more than has yet been accomplished. Amongst so many specimens of great merit in cultivation, we can only notice *Dendrobium Wallichianum*, a large mass with flowers past numbering; it was three feet through and as many high, the flower spikes actually touching each other. *Brassia maculata*, nine spikes, with every flower expanded; *Brassia Wraye*, 10 spikes, four open; *Brassia verrucosa*, eight spikes, very long, and all in flower; *Aerides crispum*, four branched spikes; *Cattleya Mossiae*, 12 fine flowers; *Epidendrum crassifolium*, with 17 heads of its pretty pink flowers; and *Odontoglossum citrosum*, with a spike of five flowers.

Fourth Prize.—Silver gilt medal, to Mr. Rae, gardener to J. Blandy, Esq. of Reading. The grand attraction in this fine collection was the truly noble plant of *Saccolabium guttatum*. This is, without doubt, the finest plant of the kind in cultivation. It has more than 20 of its beautiful spikes of flowers fully expanded. Mr. Rae also had *Cattleya mossiae*, with eight large flowers in great perfection; *Aerides crispum*, five spikes; the rare *Dendrobium Devonianum*, with four of its delicate flowers expanded; a new splendid variety of *Cattleya*, something like a *C. mossiae*, but having deeper-coloured sepals and petals also; *Cycnoches Loddigesii*, the Swan-flower; and *C. chlorochilum*.

Fifth Prize.—Certificate of Excellence, to Messrs. Loddiges. This collection contained several very rare plants of this tribe, as might be expected, considering the immense collection of epiphytes these gentlemen possess. They were, however, deficient in size, which accounts for their collection being placed last. They had a new *Cattleya* from Brazil, of surpassing beauty, something like *C. superba*,* but much finer than that justly esteemed species; also, the curious *Dendrobium undulatum*, with two spikes; the new and rare *Saccolabium fureatum*; *Cattleya mossiae grandiflora*, a large-flowered species of the finest rose-colour; *Aerides affine rubrum*; *Oncidium bifolium*, with many spikes; and the richly coloured *Broughtonia sanguinea*.

COLLECTIONS OF TEN SPECIES OF EXOTIC ORCHIDS.

The *First Prize*, gold Knightian medal, was awarded to Mr. Plant, gardener to S. Schroder, Esq. of Stratford. A finely grown collection, containing especially, a good *Aerides crispum*, one spike, with six strong branches; *Dendrobium moschatum*, four spikes, very fine; *Laccina bicolor*, two spikes; *Cir-*

* This fine *Cattleya* is very beautiful, its sepals and petals are broader than *C. superba*, and of a deep rose-colour; the tip is of the richest dark maroon.

rhea fusco-lutea, large mass, with numerous spikes; and *Oncidium intermedia*, with two strong flower-stems.

Second Prize, gold Banksian medal, Mr. Dobson, gardener to E. Beck, Esq., Isleworth. This gentleman's orchids, like his geraniums, improve every season. He had particularly fine *Oncidium ampliatum* major, with five strong spikes in full flower; also a good *Cattleya mossie* superba, with eight flowers.

Third Prize to Mr. May, gardener to Mrs. Lawrence. In this collection was the rare *Saccolabium Blumei*, with a spike of its lovely flowers upwards of a foot long; also a good *Cattleya mossie*, with six flowers; *Acrides affine*, a large mass, but short of flower; and a good *Phalenopsis*, with three spikes.

Fourth prize.—Certificate of Excellence, to Mr. Carson. He had a good *Cattleya mossie*, with 14 flowers expanded; a large mass of *Acanthophippium bicolor*; a nicely flowered *Barkeria spectabilis*, and a fine plant of *Acineta humboldtii*, with 3 long spikes of flowers expanded.

COLLECTIONS OF SIX EXOTIC ORCHIDS.

First prize.—Silver gilt medal, to Mr. Kinghorn. In this small collection there were some very fine plants, more especially *Phalanopsis amabilis*, with 20 flowers; a nice *Saccolabium guttatum*, and *Oncidium leucochilum*.

Second prize.—Certificate of Excellence, Mr. Gerrie, gardener to Sir John Cathcart, Bart., Cooper's Hill. He had nine plants of *Acrides affine*, *Saccolabium guttatum*, and the admired butterfly plant, *Oncidium papilio*, from Trinidad.

Third prize.—Silver gilt medal, to Mr. Carson, a good, well-grown, small collection.

COLLECTION OF FIFTEEN CAPE HEATHS.—AMATEURS.

First prize.—Gold Knightian medal, to Mr. Myham.

<i>Erica ventricosa</i> alba	2½ feet by 3 feet
" " <i>gibbosa</i>	3 " 3
" " <i>metuliflora</i>	2 " 2
" " <i>tricolor</i> major	3 " 3
" " <i>mutabilis</i>	2 " 2
" " <i>splendens</i>	3 " 3
" " <i>halimifolia</i>	2½ " 2½
" " <i>depressa</i>	2½ " 2

This was a well-grown collection of beautiful plants in full flower. We have selected above a few of the finest, with their names and sizes, and shall do the same to the remaining collections.

Second prize.—Gold Banksian medal, to Mr. Smith, gardener to W. Quilter, Esq., Norwood.

<i>Erica elegans</i>	2½ feet by 3 feet
" " <i>perspicua</i> nama	4 " 4
" " <i>intermedia</i>	2 " 2½
" " <i>ventricosa coccinea</i>	1½ " 2
" " <i>splendens</i>	" " "
" " <i>magnifica</i>	" " "

The two last named were small, beautiful plants.

Third prize.—Silver gilt medal, Mr. Gerrie.

<i>Erica ventricosa</i>	3 feet by 2½ feet
" " <i>superba</i>	2 " 2
" " <i>densa</i>	2 " 2
" " <i>vestita</i> alba	3 " 3

COLLECTION OF FIFTEEN CAPE HEATHS.—NURSERYMEN.

First Prize.—Gold Knightian medal, to Messrs. Fairbairn, nurserymen, Clapham.

Erica Cavendishiana.—This noble plant is now in perfection; besides being one of the finest of heaths it is one of the handsomest plants ever seen; it measures nearly 6 feet diameter, consequently 18 feet circumference, stands nearly 6 feet high, and forms a fine pyramid of bright yellow tubular flowers.

<i>Erica ventricosa brevifolia</i>	3 feet by 5 feet.
" " <i>superba</i>	3½ " 3½
" " <i>coccinea minor</i>	2 " 2
" " <i>Bothwellii</i>	2 " 2
" " <i>tricolor elegans</i>	2 " 2½

Second Prize.—Gold Banksian medal, to Messrs. Rollinson, Tooting.

<i>Erica fragrans</i>	3 feet by 2½ feet.
" " <i>mutabilis</i> , a wonder of culture	1 " 1
" " <i>Beaumontiana</i>	2 " 2
" " <i>Cavendishiana</i> , a fine young plant	1½ " 2
" " <i>ventricosa brevifolia</i>	2 " 2

Third Prize.—Silver gilt medal, to Messrs. Veitch.

<i>Erica Cavendishiana</i>	3½ feet by 3 feet.
" " <i>splendens</i>	3 " 3
" " <i>florida</i>	1½ " 1
" " <i>ventricosa coccinea</i>	2½ " 2
" " <i>superba</i>	2 " 2

Fourth Prize.—Certificate of Excellence, to Messrs. Pampin. There were some neat small *E. ventricosas* in this collection, but they wanted age and attention to make them first-rate plants.

COLLECTIONS OF NINE CAPE HEATHS.

First Prize.—To Mr. May, gardener to G. Goodheart, Esq., Beckenham.

<i>Erica Cavendishiana</i>	2 feet by 2 feet.
" " <i>vestita coccinea</i>	2½ " 2½
" " <i>daphnoides</i>	2½ " 2
" " <i>flumina</i>	3 " 2
" " <i>halimifolia</i>	2 " 2

Second Prize.—Certificate of Excellence, to Mr. Cole. His best plants were

<i>Erica ventricosa</i>	2 feet by 2 feet.
" " <i>Cavendishiana</i>	2 " 2

Third Prize.—To Mr. May, gardener to Mrs. Lawrence.

<i>Erica Cavendishiana</i>	2 feet by 2½ feet.
" " <i>Bergiana</i>	2½ " 2
" " <i>intermedia</i>	2½ " 2

Fourth Prize.—To Mr. Roser, gardener to I. Bradbury, Esq., Streatham.

Fifth Prize.—To Mr. Green.

SINGLE SPECIMENS OF CAPE HEATHS.

Large silver medal to Mr. May, at Mrs. Lawrence's, for *E. vestita coccinea*.

Silver Knightian medal to Mr. May, at G. Goodheart's, Esq., for *Erica ventricosa* alba.

Certificate of Merit to Mr. Malyon, for *Erica ventricosa*; and to Mr. Green, for *Erica propendens*.

COLLECTIONS OF ROSES IN POTS.

First Prize (Amateurs).—Silver gilt medal, to Mr. Roser, gardener to J. Bradbury, Esq., Streatham. We note the following as being good roses, in fine order, in this collection:—

Baronne Prevost, Las Casas, Madame Lafay, La Reine, Rivers.

Second Prize.—Silver Banksian medal, to A. Rowlandson, Esq., Rosenthal, near Lewisham. Good kinds, in first-rate condition, in this collection, were *Rose Aspasia*, *Baronne Prevost*, *Melanie Cornu*, *Sophie de Marsilly*, *Dr. Marx*.

NURSERYMEN'S PRIZES.

First Prize.—Gold Banksian medal, to Messrs. Lane and Sons, Berkhamstead. In this collection we were much struck by the following varieties:—

(Hybrid Bourbon) *Paul Perras*, (China) *Las Casas*, (Hybrid China) *Madame Plantier*, (Hybrid Perpetual) *Queen*, (Hybrid Bourbon) *Great Western*, (Hybrid Bourbon) *Coup d'Hebe*, (Tea-scented) *Adam*.

Second Prize.—Silver gilt medal, to Messrs. A. Paul and Sons, Cheshunt. The following were first-rate:—

(Tea-scented) *Caroline*, (Hybrid Bourbon) *Paul Perras* and *Coup d'Hebe*, (Austrian) *Harrisson*, yellow, (Hybrid China) *Henry Barbet*.

Third Prize.—Certificate of excellence to Mr. Francis, Hertford. Mr. F. had in his collection the following fine roses, in excellent condition:—

(Tea-scented) *Devoniensis*, (Hybrid Bourbon) *Belle de St. Cyr* and *Charles Dural*, (Hybrid Perpetual) *Mrs. Elliott*, (Hybrid China) *Chenedole*.

A. Rowland, Esq., had a prize awarded to him for 25 varieties of cut roses; and Mr. Francis exhibited a tray of that rather new and fine rose, *Geant de Batailles*, which was much admired.

TALL CACTI IN COLLECTIONS.

First Prize.—Gold Banksian medal, to Mr. Green. This was a noble collection of those gorgeous flowers; they assisted materially to fill up the void occasioned by the absence of the brilliant azaleas. Mr. Green has, for several years, been very successful in this tribe of plants, but at this exhibition he surpassed all his former displays. We note a few of the most showy.

<i>Epiphyllum aurantiacum</i>	4 feet by 2 feet
" <i>rubra cerulea</i>	3 " 3
" <i>speciosum elegans</i> , new and beautiful	2 " 2½
<i>Cereus speciosissimus</i>	7 " 3
<i>Epiphyllum ackermannii</i>	7 " 3

Second Prize.—Silver gilt medal, to Mr. Falconer, gardener to F. Palmer, Esq., Chesham. This also was a well grown and superbly flowered collection, but not quite so fine as the preceding. The finest specimens were

<i>Epiphyllum Jenkinsianum grandiflorum</i>	5 feet by 4 feet
<i>Cereus Maitlandii</i>	6 " 4

GREENHOUSE AZALEAS.—First prize, to Mr. Green, certificate of excellence: *A. variegata* was a good specimen, 6 feet by 1½ feet, and *A. rosea punctata* was also in fair condition.

PITCHER PLANTS.—Mr. Smith, gardener to Mr. Lawrence, had a silver Knightian medal awarded to him for a collection of these curious plants.

STATICES.—Mr. Glendinning had a prize awarded to him for six species of this genus, viz., *Statice dianthioides*, frutescens, mucronata, puberula, arborea, and speciosa.

AMARYLLIDS.—Mr. Iveson had a prize for six amaryllids, which he exhibited in good style.

RANUNCULUSES, &c.—The silver Banksian medal was awarded to Mr. Tyso, for a splendid collection of ranunculuses; and certificates of merit to Mr. Costar, for a similar collection; and to Mr. Gad, for a fine seedling large *petunia*, named *Enchantress*.

CALCEOLARIAS were never shown in greater beauty. The first prize was given to Mr. Gaines, who exhibited *Gustavus*, *Cavalier*, *Prima Donna*, *Bianca*, *Don Juan* and *Eclipse*. The second prize was given to Messrs Henderson, of Pine Apple Place, for *Duke of Rothsay*, *Miss Rattray*, *Dr. Neil*, *Lucy Ashton*, *Catherine Seaton*, and *Black Agnes*.

PELARGONIUMS.—Of these we shall speak in a future Number, observing only at present, that we thought the best of the seedlings were *Hoyle's Cecil* and *Beck's Major Donno*; and of the fancy varieties, *Mr. E. Henderson's Mario*, *Alice Lawton*, and *Beauty of Chiswick*. No white *Pelargonium* yet excels *Pearl*; it is still the gem of its colour.

LILIUM LANCIFOLIUM PUNCTATUM.—Mr. Groom exhibited twelve of these beautiful aristocratic-looking flowers. We never saw their pure white, turbaned flowers more beautifully bloomed.

FRUIT.—A very few grapes, with one basket of Noblese peaches, another of the *Violette Hative* nectarine, one of figs, and about a dozen pine apples, constituted the whole of the show in this department. There was one *Lemon Queen* pine, and that weighed 4lbs. 6ozs., whilst the common queens ranged between 3lbs. 10 ozs. and 5 lbs. 1 oz. They were well grown.

EXTRACT FROM CORRESPONDENCE.

QUEEN WASPS.—As this is now the full season for queen wasps, permit me to mention a very efficacious way of destroying them. Put a good percussion cap upon the nipple of an empty gun or strong pistol. Let the wasp settle, then bring the muzzle close up, and fire the cap; it will generally bring the insect down in a disabled state, doing little or no damage to the leaf or branch on which it is settled. If the locality is not of consequence, a pistol charge of loose powder will be still more efficacious. I need hardly inform you that the *Pyraecantha* has peculiar attractions at this season for wasps. I have, this morning, killed the fourteenth off of a plant at my door. If you could prevail on your readers more generally to plant this tree, and to watch for the wasps, which are certain to resort to them in the spring, these insects would soon be as scarce in this country as, fortunately now, is the hornet.—CLERICUS.

TO CORRESPONDENTS.

CHAMOMILE IN TURP (Beta).—We know of no other mode of destroying this weed than by cutting it down within the soil as often as it appears, and putting a sponful of salt on the stump of the root.

SLUGS (XX).—The cottager was quite right in his practice of getting up early in the morning to hand-pick the slugs from his crops; it is the best mode of keeping them under; but putting them into brine or fire, or crushing them with his foot, would have been a more speedy mode of destroying them.

MILDEW ON VINE-LEAVES (F. W. Tillock).—If you burn sulphur and tobacco on your vineyard you will kill every leaf and every grape, and yet not get rid of the fungus. In the case we mentioned at page 33, the mildew returned upon the new leaves. The leaves you have sent to us are very severely attacked; and, let us add, that we fear you aid the progress of the disease, by keeping the inside of your house too damp, at least we judge so from the grossness of the leaves—that grossness, from whatever cause arising, promotes the growth of the mildew fungus. If the case was our own, we should pick off a good many leaves, selecting, of course, those most affected, and these we should burn. This would admit more light into the house, which is unfriendly to the growth of the fungus; and, for the same checking purpose, we should keep the air of the house dry. In a case so severe as yours, we would have every leaf thoroughly washed clear from the fungus by means of a sponge dipped in salt and water, four ounces to the gallon. Let this be done in the evening, and the next morning have the whole well syringed with clear water. After this, an occasional syringing with salt and water, and then with clear water, as directed at p. 54, would probably keep down the disease. We have more confidence than ever in this treatment, having received a letter from a correspondent, in which it is stated that it has been adopted for removing the mildew from cucumber leaves with complete success.

STRAWBERRIES (A Working Man).—If the runners are strong the age of the parents producing them is of no consequence. Those who grow the finest strawberries never allow them to remain after the second year; the beds are then broken up and others formed in a different situation. We will here add that the grower of the finest strawberries we ever saw, trenches the ground for them full three feet deep, digging in with every spit much red soil and manure as he worked in. His British Queens are red all over, having no 'green noses.' The best time for making your beds will be August; and if your friend will then let you have his last year's runners, from which he has nipped the blooms, if you move them carefully you will save a year.

ANTHRINUM CULTURE (C.).—*Anthrimum* require to be sown in the spring, either thinly where they are to flower, or in a spare corner, to be transplanted when three or four inches high. They will grow in almost any soil.

HYDRANGEAS (H., a Subscriber).—These, you say, are only partly in leaf, but shoots are strong from the bottom. By all means cut down the old sticky stems, and if the roots are good the bottom shoots will flower in the autumn.

LAGUSTINAS (Idid).—These planted last autumn are turned brown, either entirely or partially. Cut the brown tops off, or say the whole of the last growth; and after so much May rains they ought to shoot again from the old wood; at least, be in no hurry with them; we have seen them push after looking dead for some months.

CAMELLIAS IN PEAT (H. C. Wells).—"A good gardener near you pots them in very fine peat to be 'had near you,' by all means use the same; but in doing so, if they are in loam now, you ought to shake off as much of it as possible. Mr. Beaton says he has seen them grown in peat successfully in many parts of Scotland; but, knowing that certain kinds of peat is poison to them, he does not recommend it.

ANTHUS STRIATUM (A Subscriber from the commencement).—This is the name of the plant so misappell by those from whom you bought it. It is of the same natural family as the hollyhock, as you

thought, and is one of the hardest of greenhouse plants; will stand several degrees of frost, requires very rich soil, a large pot, and abundance of water in summer. When in good health it is a very showy plant, and flowers from May to October. It is a good plant to train against a wall in summer; to be taken in on the approach of frost. A notice of it you will find at p. 82.

MAGNOLIA GRANDIFLORA (*Ibid.*).—This does not require a greenhouse even in Scotland. It will do with you at Thame much better against a south wall. In the southern counties it grows and flowers in the open shrubbery.

CAERNATION LAYERS (*An Admirer of the C. G.*).—"The top spit of a very old pasture, good, and full of fibres," which you have as the soil for your cucumber bed, will do at the end of the season for potting your carnation layers better than if used fresh from the pasture.

CLAY BROUGHT TO THE SURFACE (*Ibid.*).—You have done right to take together and burn the excessive layers of clay. If too much clay still remains at the surface, retrace the ground, and thus get it below again.

QUICKEN GRASS (*An Amateur*).—This weed, which is also known as whicken, couch, and twitch grass, is the *Trifolium repens* of botanists. There are only three ways of getting rid of it, viz., by deep trenching, a thick crop of late potatoes, or forking it out. The last is an endless job, as every fragment of its creeping roots grows. But there are many worse grasses in good lawns; and, if you mow your lawn often, it will not disfigure the rest of the grass.

EGG-PLUM SHEDDING ITS FRUIT (*Frank*).—The plums drop when nearly full grown. Perhaps the roots have descended into an unusual subsoil. If so, you must after carefully deciding this, cut away the portions which have descended below the true level, and try and introduce some impervious material beneath them. Transplanting either, if the trees are not too old, may be resorted to in the ensuing autumn.

BEST RHUBARB (*Ibid.*).—"We are for the 'Victoria.' There are many other good kinds, but none, we think, to excel this in general utility.

STRAWBERRIES BADLY FORCED (—).—"We should advise you to plant them in a rich border, and if well watered, as they did not bear in your forcing pit, they may bloom in September, and can then be taken up carefully without disturbing the roots, and put under glass. They will yield a late crop. You had better have some fresh plants of last year for early forcing.

ASPARAGUS PLANTING (*G. E. L.*).—"The best time for doing this is April, when the shoots are beginning to grow. Two or three year old plants are best for planting. We will give directions when the time arrives.

LIQUID MANURE (*W. Mansell*).—"You do not tell us how much horse and pigeon's dung you put into 'ten or fifteen' gallons of water. How, then, can we give the proportion of the liquid you should use? Then the vagueness of 'ten or fifteen' gallons is such as to render our answer further difficult. We assure you, and all our readers, that in plant culture, as in other sciences, there can be no uniformity of results without precision in the means employed. Twelve gallons of horse droppings and one of pigeon's dung, soaked in fifteen gallons of water, would require to be diluted with sixty gallons of water.

STORING POTATOES (*A Great Admirer*).—"Dry soil may be used for this purpose, to place in alternate layers with them, instead of sand or earth, as we recommended. We are glad to hear from you that the potatoes in your neighbourhood (Malvern) are looking so well.

BEAN APHIS OR DOLPHIN (*M. A. Maidstone*).—"Having taken off the tops of the affected plants, you have done all that you can on such large heads. Watering them with soap-suds and lime water, we fear, will have injured the blossoms without affecting the aphids. On small plots, after removing the tops of the plants, a very effective application is a dusting of Scotch snuff. We apply this with perfect success, also to the aphides on our choice gooseberry bushes. We take a basin with some of the snuff in it, and stir the ends of the affected bushes in it.

SALTING ASPARAGUS BEGS (*A Subscriber*).—"Asparagus, being a native of the sea shore, will bear the application of moderate doses of salt without any injury. You may sow the salt broadcast over the plants on a dry day, throw some of their stems, if it all falls down to the soil. You may apply it now with great benefit, and with no fear of injury.

CREEPERS FOR NORTH WALL (*H. W. Tewkesbury*).—"You wish to know what creepers for north walls will thrive against a wall, the aspect of which is due north. We are sorry to give you so unfavourable an answer, but there are none that will there flower satisfactorily. We would recommend you to try the double blossomed cherry, the common honeysuckle, the variegated and double bumble, and the common Irish ivy. These are hardly enough, and may do better than rhododendrons and *Prunella*, which, although variegated periwinkles to run amongst them, also crecuses and snow drops. Do not expect too much, and you will not be disappointed.

HONEYSUCKLES (*Noomi*).—"You have two honeysuckles trained up two trees, and so infected with green fly that they are almost destroyed, and you have tried various means to destroy them without success. You have either not applied it sufficiently, or it has not been strong enough. Try again, or, if your honeysuckles are too far gone, cut them down immediately. There is a long summer yet before us for them to make fresh shoots, and ripen them too, before the autumnal frosts set in.

SLEGS ON RANUNCULUS BEES (*Ibid.*).—"To destroy the slugs that infest your ranunculus, water the bed with clear lime water, twice, at an interval of two days between. Brewers' grains are an excellent

trap, and so are cabbage or lettuce leaves. Examine these traps every evening by candle-light, and very early every morning. Use these means in view of your garden most perceptively for a month, and you will be rid of them. Brewers' grains are a good manure when in a decayed state.

TWO-LIGHT FRAME (*Rev. C. W. L.*).—"A frame with two lights for protection purposes in winter should be 4½ ft. wide and 7 ft. long. This will hold a considerable number of such things as verbenas, petunias, geraniums, &c. At the time to force roses, strike cuttings, sow seeds, and various other useful operations, the plants protected through the winter may be put out under a hoop and mat shelter. A gentle hot-bed should then be made, with short well prepared litter, and a covering of tanner's bark laid upon it. The cuttings, roses, and seeds may be placed upon that, and will answer well if due care be taken that the heat is moderate.

ROSES (*Ibid.*).—"The two roses (*Wm. Jesse* and *Souvenir de Malmaison*) that you have flowered in doors may now be planted out, and should have the long straggling shoots pruned in to half their length. They will then break afresh and flower again in the autumn. Instead, however, of planting them out, keep them in the pots, plunged behind a low wall or hedge, and they will flower much stronger next year than plants taken up and potted in the autumn.

ROSE STOCK SUCKERS (*Ibid.*).—"The strong rose stocks you speak of as breaking strongly near the ground may be budded, as soon as the shoots are long enough, and in two ways: first, dig up the stock, and Louis Buonaparte. These are good roses, and will answer your purpose. Budding of roses may now be commenced, provided the buds part easily from the bark; and the bark of the stock, through the abundance of sap, rises readily with the budding knife.

ASPHYLIA GLANDULOSA (*Ibid.*).—"This requires a good strong loam, in an open situation, to thrive and flower well. It may be propagated by slips, or division of the roots, but is best increased by seed sown in pots, plunged in a decayed hotbed.

ROOT SUCKERS (*A. Y. L.*).—"Your rose suckers undoubtedly injure the old bushes, and in two ways: first, by drawing the sap through the connects them with the old plant they draw off the strength which ought to support the parent stock; secondly, the roots of the suckers impoverish the soil, thus again robbing the old plant of food. From the lack of a year's growth having roots of their own, remove the soil carefully where you think the connecting roots are, and when you have found them, cut them clean through with a sharp knife, and let them exist on their own resources till the autumn, and then remove them to a situation where they may support themselves. All suckers of this year's growth destroy as they appear.

GREENHOUSE (*Ibid.*).—"Your greenhouse, which is very vigorous, blooms, but does not bear, is too luxuriant. Clear away the soil to some of the strongest roots, and cut them in two. This will cause your tree to produce better, because less luxuriant, shoots for bearing. **GYGIS**.—"It is a native of the country of Athens, and too good to endure our winters, though 'trained to a south wall in a sheltered corner in the county of Surrey.' Being an evergreen climber the best place for it is against the back wall of a greenhouse. (*H. P. Vibert*).—"Your shrub is a Solanum, and, be believe, *Solanum angustifolium*, but the sprig you sent was too small to judge by. If we are right, the flowers are dingy purple and sweet-smelling, and the leaves lanceolate and evergreen. It is a native of Buenos Ayres, and requires a greenhouse.

PEACHES (*X*).—"String tied length and crossways between the poles, described at p. 119, would do instead of boughs for the support of pees.

TURNIPS RUNNING TO SEED (*George*).—"This must have been occasioned either by their being too much shaded, or not being well watered during the late dry weather, or by the stock being of an early-seeding habit. If you avoid all these errors your turnips will not seed prematurely.

SULPHATE OF AMMONIA (*An Admirer, Halifax*).—"This salt being a compound of sulphuric acid and ammonia, you may form an excellent apply for yourself, by pouring oil of vitriol (sulphuric acid) into some atomized liquor from the gas, until it no more bubbles arise from the liquor. You may obtain sulphate of ammonia, in crystals, of the London Manure Company, for about 18s. per cwt.

CUCUMBER BLOSSOMS (*Ibid.*).—"It is not necessary to impregnate these in order to obtain fruit from them. Many first-rate gardeners testify that they have removed the blossoms before they opened, and yet the fruit was perfected. If you require seed from the fruit, impregnation, of course, is necessary.

SLEGS (*H. S. R.*).—"These are perfect insects, and not the larva of a fly or moth. There are many species. The name given to them by entomologists is *Limna*. Answers to your other questions next week.

CORRECTIONS (*A. B. C.*).—"Thanks for your kind desire that we should not have even 'a speck.' You are wrong in some of your corrections. *Polma* is right.

SECOND SWARM (*H. A. C.*, *Winchester*).—"Prevent this if you can by putting a small hive on the top of your stock immediately. If the second swarm comes forth notwithstanding, unite it to another second swarm, or cast, as directed at p. 104.

DOUBLE WALL-FLOWERS (*J. C. Warwick*).—"Your double wall-flower is a fine dark-coloured variety of great merit, but not new. We have seen the same variety about Windsor twelve months ago. It is the richest and darkest coloured double wall-flower ever seen.

WEEKLY CALENDAR.

M D	W D	JUNE 21—27, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bet. Sun.	Day of Year.
21	Th.	Q. Vict. pro. Long. day. Partridges hatch.	Viper's Buglos.	45 a. 3	18 a. 8	8 54	1	1 22	172
22	F.	Sun's dec. 23° 27' N. Six-spot Burnet Moth [seen].	Canterbury Bells.	45	19	9 41	2	1 35	173
23	S.	Wheat flowers.	Lady's Slipper.	45	19	10 23	3	1 48	174
24	SUN.	S. S. A. TR. NAT. J. BAPT. Midsummer-D.	St. John's Wort.	45	19	10 56	4	2 1	175
25	M.	Common Wasp abounds.	Sweet-william.	46	19	11 21	5	2 14	176
26	Tu.	Privet Hawk Moth seen.	Blue Sowthistle.	46	19	11 50	6	2 27	177
27	W.	Cuckoo last heard.	Perforated St. John's Wort.	47	19	morn.	7	2 39	178

LONGEST DAY.—This is always considered to be the 21st of June, but it is not strictly so, the next day or two being slightly longer. The longest day at the Greenwich Observatory, after deducting for refraction, contains 16 hours, 34 minutes, and 5 seconds.

NATIVITY OF ST. JOHN THE BAPTIST.—This festival, in commemoration of the forerunner of our Redeemer, was first instituted in the year 495, and has ever since been observed both by the Papal and the Reformed Church. He was born about six months before our Lord; and, when nearly 33 years old, "the word of God came unto him in the wilderness," which he appears to have made his abode, and, obeying its summons, he left his solitude and "preached the baptism of repentance for the remission of sins," in "all the country round about Jordan." At the end of a ministry of about 13 months' continuance he appeared at the court of Herod Antipas, and reproved him boldly for his lascivious intercourse with his brother's wife, Herodias. The result is told us in Scripture (Matt. xiv), and we will only add that the place of St. John's imprisonment was the Castle of Machabius, near the Dead Sea. His murder occurred A.D. 33.

PHENOMENA OF THE SEASON.—We now come to the consideration of one of the parts essential to all flowers for the production of seed—the *stamens*. These are the long stalks (*filaments*) usually white, with yellow heads (*anthers*), situated next within the petals, and bearing the male portion of flowers. They vary in number from one, as in the common Marechal (*Hippuris*), to a great number, as in the strawberry, and in form as represented in the annexed woodcut. It is on the number and some peculiarities of the stamens that the celebrated Linnæan system of arranging plants is founded. In double flowers the stamens are changed into petals, and these flowers are, consequently, incapable of producing *pollen*, the powder which, when

applied to the pistil, impregnates the seed and renders it fertile. This pollen is produced by the anthers only; and, to secure that it shall reach the summit of the pistil, many contrivances are provided. Thus, in most flowers hanging downwards the stamens are shorter than the pistil, so that when the pollen is shed it may fall down upon it; and in the herbery, when the filaments are touched gently, they spring forward and dash the anther against the pistil. Pollen consists, as may be seen when examined under the microscope, of numerous little bags, angular in the violet, kidney-shaped in the narcissus, and perforated in the pelargonium. They differ in colour or form almost in every species; and their surface, though mostly smooth, is often wrinkled, net-like, and even prickly. When moistened, these globules burst and emit a cloud of dust. This is very remarkably visible in the cypress, birch, and willow, if they are shaken when the pollen is ripe. This dust is also composed of myriads of little bags, which in their turn explode when moistened, as may be noticed most readily by placing some of the ripe anthers of Valerian on water.



a, stamen of the lily; b, of the Lemna (duck-weed); c, of the potato; d, of the berry; e, of the ginger; f, of the sage.

INSECTS.—At p. 52 of our present volume, we expressed a doubt whether one of the Snake Millipedes (*Colletes*) really attacks the root of the potato until this is in a state of decay,



and the same doubt exists with us relative to another and much smaller species, *Julus pulchellus*, represented in our drawing of its natural size and magnified.

Cabbages have been very liable, during the recent spring, to wither away when about half grown. When pulled up, their stems, just below the surface of the ground, are found to be thoroughly decayed, and in the decayed places are usually a colony of this species of snake millipede. Now, the question decaying, is this insect the cause of the decay, by wounding and eating the bark of the plant; or does the parent wound the bark, depositing her eggs in the wound, and then wet, and the irritation produced by the larvae, complete the fatal wounding; or does the decay first arise, and then this millipede comes to it to feed upon the putrid part, and the mites (*Acarus*) which frequent the places where decaying vegetable matter occurs? These are questions to which the answers, at present, cannot be decisive; and we shall be glad of any facts

JUNE.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
21	Showery.	Showery.	Fine.	Fine.	Fine.	Fine.	Cloudy.	Fine.
Highest & lowest temp.	71°—47°	73°—51°	73°—51°	83°—52°	80°—51°	81°—56°	67°—46°	77°—52°
22	Fine.	Showery.	Fine.	Fine.	Fine.	Stormy.	Cloudy.	Fine.
	72°—40°	75°—45°	76°—40°	86°—48°	73°—48°	93°—50°	76°—41°	81°—55°
23	Rain.	Cloudy.	Fine.	Fine.	Fine.	Showery.	Showery.	Showery.
	73°—44°	73°—57°	73°—49°	91°—63°	73°—51°	69°—48°	67°—48°	75°—55°
24	Showery.	Cloudy.	Fine.	Fine.	Rain.	Cloudy.	Cloudy.	Showery.
	72°—54°	73°—54°	66°—48°	89°—67°	74°—52°	67°—48°	68°—52°	69°—52°
25	Rain.	Cloudy.	Cloudy.	Rain.	Showery.	Fine.	Showery.	Showery.
	70°—54°	66°—54°	65°—41°	85°—47°	71°—52°	70°—42°	70°—48°	65°—52°
26	Fine.	Fine.	Cloudy.	Cloudy.	Cloudy.	Cloudy.	Cloudy.	Cloudy.
	67°—52°	70°—49°	73°—43°	67°—51°	74°—49°	67°—54°	71°—56°	73°—54°
27	Showery.	Fine.	Fine.	Cloudy.	Rain.	Cloudy.	Cloudy.	Cloudy.
	70°—52°	73°—44°	76°—49°	63°—56°	66°—56°	73°—56°	76°—53°	76°—57°

bearing on the subject from any of our correspondents. In our own opinion, this *Julus* does not attack the cabbage whilst this is healthy, but that the wound may be occasioned by the parent millipede, and that the young ones feed on the mites which frequent the decaying wounds. This millipede is a sandy grey colour, baving on each side a row of small crimson spots. The number of legs vary with the age of the insect, but the greatest number observed in the *Julus pulchellus* have been about 170. When disturbed, it coils itself round in the way we have represented. It has been found in decayed onions and pansy roots, as well as in cabbage stems. Quicklime and gas-lime, incorporated with the soil, destroy or drive away these creatures.

In a recent Number we advocated the establishment of village Horticultural Societies, and quoted instances and testimonies shewing the beneficial influence such societies exercise over the improvement of the gardening of the many. There is another class of local Horticultural Societies, which have also for their object the improvement and diffusion of the practice of gardening among the more wealthy classes, and to these societies we will offer a word of

warning, suggested to us by the state of some of the departments of the London Horticultural Society's garden at Chiswick.

Let local societies strictly and invariably endeavour to attain their object by judicious rewards alone. Let them hold out prizes to be attained by the growers of the best vegetables, the best fruit, and the best flowers. Let them tempt all within their influence to contend for those prizes. Let them sit

in judgment upon the competition, and let them distribute the prizes liberally, judiciously, and with a virtue above suspicion. Let them do all this, and they shall reap a harvest of success; but never let them endeavour to promote horticulture by their example,—never let a local society have a garden; for, if they do, we warn them, from long experience, that it will be worse than a failure. A garden would swallow up their funds, and the things cultivated in it would, for the most part, be useless, except as a warning, enabling its members to say, “If you wish to know how any plant ought *not* to look, go and see it in our garden!” We could name half a dozen instances where this was the result, but we forbear, inasmuch as the utmost penalty of the mistake has been paid—the funds of the societies have been involved, the plants sold, and the gardens abandoned.

It would not be very difficult to enlarge upon the reason for this, but let it be summed up in one sentence—In such gardens there are not the inducements, always found to be requisite, to stimulate and to sustain us in our pursuit of excellence. But, instead of dwelling over the reason for such failures, let us point out their consequences, for these are far more important. Such failures are injurious to the credit and influence of the society; and they exercise a benumbing influence over the horticulture of a vicinity. Subscribers do not care to belong to a society that is ridiculed; and the gardening of a neighbourhood is not improved when a cultivator is able to say, “Yes, those plants do look bad, but those in the society’s garden are worse.”

If such failures are productive of evil in a local society’s garden, how much more are they to be deprecatd when occurring in the garden of a society like the London Horticultural. If gardening in all its departments is not illustrated there in a state of excellence the most superior, it works a measure of harm instead of good. Now, that superiority does not prevail in some of the departments at Chiswick; and we are about to quote a few extracts from our note-book, as a friendly nudge to awaken the society’s authorities from their slumbers upon some points, as well as for the information of our readers.

We observed, on Saturday last, that the plum-trees were almost universally blighted at the Chiswick gardens—a fate they are unavoidably enduring with the rest of England; but why is the American blight allowed to spread upon the apple-trees, from branch to branch, and from tree to tree, without a remedial attempt? The persevering application of spirit of turpentine to each patch of blight by means of a brush would gradually subdue the pest, or restrain it within harmless bounds.

The peach-trees are well trained, but, with the exception of one variety, the *Acton Scot*, almost without a single fruit. We should like to know whether shelters were employed, or whether the ex-

ception was accidental, and one more instance added to many we have noticed that this early peach often escapes and bears a good crop when the later varieties are all cut off.

We should also like to be informed why the pyramidal system of training standard pear-trees, by fastening the points of their branches downwards, has been neglected or abandoned. We remember that it was a system held up for imitation by some of the society’s authorities, and if it has proved to be a failure, as the trees in question intimate, this ought to be announced; for, to have committed an error is no crime, and the warning afforded by the confession of an error is a benefit only second in importance to the promulgation of success.

In the kitchen-garden department we observed a state of affairs causing no little amusement to some of the visitors. Several of the beds of seedlings had only one plant in them, and all were woefully deficient. Whatever may have been the cause of failure, the beds should not have been left in that state. The peas were grown in single rows, with sticks on each side, which may be, or may not be, economical; but there cannot be two opinions that it is not good gardening to grow them in rows at most three feet apart, and the tall varieties nearer together than the dwarfs.

When we turned to the glass structures, there the plants were almost entirely looking in a state of high culture; and we would only suggest that those in the great conservatory are becoming far too crowded, and that such miserable calceolarias as are there in pots should be at once banished.

We make these observations with the anxious desire that every department of the Chiswick garden should exhibit horticulture in the greatest state of excellence consistent with our present knowledge of the science. We would not have even its seedling cabbage beds defective, for it ought, in all gardening, to be “our great example as it is our theme.” If there is any one department which, from peculiarity of soil or situation, or other cause, cannot be maintained so as to exhibit superiority in cultivation and produce, we should recommend that department to be abandoned, because, for the reasons we have assigned, it will always be quoted elsewhere as an excuse for inferiority.

THE FRUIT-GARDEN.

THE PEACH AND NECTARINE.—We had verily intended to have said a few words on the vine, in doors, but on looking over our fruit-trees, with a somewhat anxious eye, we are constrained to advise a little attention to the peach and nectarine, which at this period, and especially under the circumstances of the past spring, may be expected to play some strange vegetable vagaries. We have before alluded to those monopolising shoots termed “gourmands” by the French; and, in common gardening language in this

country, "robbers." From the maiden tree, planted last winter, to the tree in full bearing, the peach is peculiarly liable to the production of such shoots in the early part of June, especially if the tree be very healthy and in good soil. Strong growing trees require, therefore, more management than those that are weak; and, if such shoots be left uncontrolled, it will be found, in a season or two, that the tree, although, perhaps, larger in volume, has produced long rambling boughs, intruding on their neighbour's position; whilst a considerable portion of the wall, near the trunk or collar, has become either nearly without young shoots, or those which exist are so deprived of sap by the over-luxuriant shoots as to be almost useless. The existence of these "robbers," therefore, merely points to the fact that the tree is making effort after effort to regain that species of liberty which it has lost, viz., that of a standard or ordinary tree; which, we need scarcely add, is the character of the peach in its native country. These "robbers" may be readily known. It will be remembered that, in one of our earlier numbers, we classified the wood of the peach and nectarine under three divisions, viz., that of a proper or medium character, that which is too weak, and that which is too strong. However, to those who are not much at home in gardening matters, we may as well observe that all shoots which commence branching off into "*axillary*" or side spray wood may be considered over gross. As an example of axillary wood, and in order to make our observations perfectly familiar and certain, we would point to such a gross growing shrub as the grape-vine. Everybody must know that the vine, when growing strong, produces abundance of side spray where the shoots have been growing a few weeks: such are technically, and, indeed, scientifically, termed "*axillary*" shoots. All shoots, then, during summer, which commence branching in this way should have their points pinched off as soon as this disposition is apparent; nipping off merely the extreme end. In the case of young trees just beginning to acquire strength, it is well to permit them to ramble a little longer before stopping, in order to acquire a good root action, and to get a good portion of the wall covered betimes. This procedure is perfectly compatible with the future welfare of the tree, as one of the prime reasons for a severe course of stopping in established trees is so to equalise the sap that the fruit on all the subordinate parts of the tree may be duly supplied with nutriment; which is not the case when gross shoots are permitted to revel in the root supplies unmolested. Young peach and nectarine-trees, therefore, may have "more law" than older trees; but, towards the middle of August, if such young trees still shew a strong root action, a severe course of stopping should commence with these also: taking care to keep the eye directed, in a special manner, to a few of the very gross *leading* shoots, which will contrive to push forth, in many cases, young points until the beginning of October.

We may, now, as well observe upon the management of the lateral or axillary shoots which have sprung forth from those shoots which were "stopped" or pinched; and, we would say, just look carefully over your peach-trees at this very period; and, once for all, note down in your mind's eye the different character which manifests itself in the different kinds of young wood before alluded to. On the leading portions of your vigorous peach-trees you will perceive some strong shoots, whether stopped or unstopped, which have produced two or three pairs of these axillary shoots. On others, not quite so strong, there

will be seen a disposition to proceed in a similar course; this is shewn by a couple of tiny leadlets which have taken the liberty of developing themselves in the very nursery of the future bud; these two leadlets, by-the-by, frequently receive the accession of a third, which, indeed, generally becomes a wood bud: that is to say, it produces a branch in the ensuing year, while, ten to one, the two outer ones become blossom buds. Well, these things you must carefully take notice of, and, by pursuing the same course next spring at the period of leading, you will establish the identity of the parts in question, and trace out the peculiar formations of the respective parts to which we now allude. Some of the leading shoots have developed, we will say, three pairs of axillary shoots. Now, since our limitation of space on the wall, and our desire to promote a healthful elaboration by means of light, prevent *all* these shoots being nailed down, a selection must be made. In the first place, the first pair of axillary shoots are of more value than any of the rest; there is a greater probability of their tissue becoming hardened; or, in other words, their wood becoming ripened. These, therefore, must be reserved, provided always that there is space at liberty on which to train them; and when they have grown about nine inches in length, their tops must be pinched in like manner, in order to solidify their character. When the first pair are thus retained, the next pair, in general, must be stripped clear away, for there is seldom room to lay them in: they would, indeed, be too close to the others. This done, it becomes a question whether to retain the next pair? All we can say is, that if they can be nailed down, without overshadowing other shoots, by all means do so, taking care to "stop" them when about eight or nine inches long. After securing two pairs of these axillary shoots, few more are worth saving, at least in our northern counties: autumn, with its chilling damps, comes on betimes, and the growing principles, if not checked by natural means, must receive a check by some artificial course.

HEDGE-ROW FRUITS.—During last December, we offered some hints to the cottager on the culture of hedge-row fruit-trees; and we shall feel it a duty to continue, at intervals, such advice as may be necessary. In the first place it is very probable that young trees in such situations will be much benefited by watering, especially if the hedge-row is elevated above the ground level. Where newly planted trees are thus circumstanced, we would give them every assistance possible in this way, even adding soapuds or dunghill drainings to the water, if such fertilizers are spareable. When they get well established they will need little pains. The stems, too, should be kept free from weeds; such may be pulled or cut down, and thrown on the surface of the soil over the roots to act as a mulching—they will keep the roots cool and damp. Care must be taken, also, to train young strippling trees to a leader of the desired height. Any side spray which is produced in young rising trees must by no means be stripped away suddenly, it should be merely pinched back when about a couple of inches long; the part remaining will tend to thicken the main stem, which is apt to grow up too slender without such precautions.

BIRDS, &c.—We hope that every one anxious about his fruits has taken care to banish those terrible fruit stealers, the blackbird and the thrush. Also, the wasps' nests taken now save much trouble, as also much fruit.

R. ERRINGTON.

THE FLOWER-GARDEN.

ROUTINE WORK.—*The Flower-beds.*—The groups of flowers in beds are now all planted, and will require considerable attention to keep them in due order and neatness. You will now find all the articles you manufactured in winter of great use; we mean such useful things as flower-sticks, hooked pegs, and labels.

VERBENAS.—These useful plants, for filling beds, will now begin to grow quickly and will require pegging down. Previously to doing this, let the surface of the soil be stirred rather deeply with the Dutch hoe. Do this on the morning of a day that promises to be a bright sunny one. The sun will then destroy all the young weeds effectually. In the latter part of the afternoon you can rake the beds carefully, so as not to injure the plants, clearing away all the rubbish from each bed as you proceed. Thus, if suddenly called off or stopped by showers of rain, your garden will not appear littery and neglected in any part. After this operation is completed, let the plants be pegged down regularly all over the beds, concealing the pegs as much as possible, so as to give the idea that the verbenas had grown so close to the ground naturally. Sweep the grass, to clear away all litter, and then you will have finished your job in a workmanlike manner.

PETUNIAS may be treated similarly, but will require a little more care or the branches will break. The same instructions apply to the following: roses, grouped in masses, to fill a bed or beds with one colour; scarlet geraniums, gaillardias, heliotropes, and some others of less note. All these, to keep them close to the ground, require the same management.

MIXED FLOWER-BORDER.—In small gardens this method of cultivating flowers will be necessarily adopted. The agreeable appearance of the border of flowers, planted in this manner, will depend greatly upon the way in which it is furnished. Tall growing varieties should be planted or sown at the farthest distance from the edge, medium-sized ones next to them, and the low growing varieties in front. Generally speaking, these borders will be filled with herbaceous perennials, but, although these are sufficiently numerous, yet there are so many beautiful flowers very desirable that are not of that class, the amateur or cottager is quite justified in cultivating them. Such plants, as we have mentioned as suitable for grouping in beds, may be, with great propriety, planted in the mixed flower-border; but we do not recommend, in that case, the use of hooked pegs, as that plan causes the plants so treated to occupy too much space. Instead of pegging them down, we advise tying them up to short sticks. Place round each verbenas and other trailing plants four or five sticks, and tie a shoot to each. Let the sticks be placed at such distances from each other as will, when the plants are grown and in flower, give each the appearance of a large specimen, some 12 or 18 inches across, according to the size each plant is likely to attain. This operation of tying them up requires almost a daily attention, so that they may not become too long or brittle to take the desired form.

SWEET PEAS.—In some gardens it may be desirable to have a row of these sweet-smelling pretty flowers, to serve as a division between the vegetable or fruit-garden, separating these from the flower-border or garden. They will now, whether sown in a row or in patches, require support. The most common articles used for the purpose are the branches of hazels. They should be straight, and well furnished with

small spray for the tendrils to catch hold of. Clip off all straggling twigs, and stick them in close to the bottom of the plants, to support them till they reach the higher twigs of the taller sticks. A neat, useful, and effectual support for sweet peas was sent to us some weeks ago by Mr. John Roberts, of 34, Eastcheap, London. It is made of wire in a circular form, about eight inches diameter, with six uprights and half circular bands of wire attached. It is so contrived as to be in two pieces, which join together with slides, and then form a circle to surround the plants. Mr. Roberts has registered this article, and intends advertising it in *THE COTTAGE GARDENER*. If made stronger and higher than the one sent us for inspection it would form a good support for dahlias, hollyhocks, and other tall-growing flowers. Should any of our readers wish for further information about this useful article, Mr. Roberts will be happy to give it by post.

INSECTS.—*Slugs.*—Several of our correspondents have written to us for information how to destroy these destructive pests, one of which we answered last week; but, as we find that they prevail unusually this season in various parts of the country, it may be advisable to enter more fully into the means to relieve the gardens of such of our readers as are plagued with them. We remember, more than 20 years ago, complaining to an old Scotch gardener, of the destruction that woodlice had effected among some seedling polyanthes, and asking him how to get rid of them. His reply was short and pithy, "Catch them, an crush them atween twa stanes." This, though an effectual way of getting rid of such vermin, whether woodlice or slugs, is rather too tedious. Where a garden is very much infested with slugs, the following methods should be perseveringly put in practice. First, lay traps for them of brewers grains or cabbage-leaves, placed in small heaps in various parts of the garden. Every night and very early every morning gather up all that may have crept out to the traps to feed, and destroy them. All crops just springing from the ground should be frequently dusted with quicklime and soot. The lime will destroy all the slugs it touches; and the soot will prevent them from feeding upon the young and tender leaves, besides being beneficial to the crops as a manure. Lastly, if those means fail, water the ground with clear lime-water two or three nights in succession; this will destroy worms as well as slugs, and will not injure the tenderest plants. As we observed before, all these preventives and destructives must be used perseveringly.

FLORISTS' FLOWERS.

TULIPS.—As soon as the leaves of these beautiful flowers are turned yellow take up the bulbs immediately. If delayed some time, and the weather should be wet, there is danger of their starting fresh roots, which would injure the bloom next year. When taken up, expose them to the sun a few hours every morning until they turn brown; and when perfectly dry, divide from the flowering bulbs all the offsets. Have your bags ready to receive them, with the name of each kind fairly written upon each bag. You may either keep the offsets and flowering roots separate or not, as best suits your convenience. Some florists have a nest of drawers to keep their bulbs in, and a good plan it is, but small growers may keep their roots of tulips very well in paper bags. They should be kept in a cool dry room till the planting season arrives again.

PANSIES.—These flowers will now be producing, if

well managed, their best flowers, which will be injured much, and the blooming season shortened, if exposed to the weather of our variable climate. Shelter from rain, wind, and a too powerful sun, must be put into practice. This is a good time to increase them, either by layers or cuttings. Directions for these operations have been given at page 47 of vol. i.

PINKS.—Thin the flower-buds to three or four to each stem. The buds will now be advancing towards expansion. Some kinds, and good ones too, are apt to burst the pod on one side, and so produce a one-sided, imperfect flower. To prevent this, tie round each bud you wish to bloom in perfection a piece of soft bass-matting, or, which is far better, have some Indian-rubber rings of the proper size placed round the bulbs. If you observe any of the flowers still inclined to open irregularly, take either a sharp knife or a pair of small pointed scissors, and open the divisions of the calyx, or green flower cup, so far as you judge sufficient to enable the flower to expand equally on every side. Continue to increase the pink by pipings, as directed in the last Number.

DAHLIAS.—Finish planting, if not already done. Seedlings should now be so forward as to be fit to transplant into rows in the open air. They may be planted rather thickly—that is, let the rows be from two to three feet apart, and the plants one foot to eighteen inches in the row. When they are in flower, select those that have good properties, and pull up those that are decidedly bad. By good properties we mean such as are perfectly double, with the centre well up, with a round form, each petal or flower-leaf rather cupped, the lowest petals projecting a little beyond the next tier, and the second row of petals a little beyond the third, and so on up to the centre, which should be full, but not so much so as to prevent them expanding: no eye, or anthers, should be visible. Possessing these properties, with clear bright colours, and a good size, your seedling will be worth preserving. T. APPLEY.

GREENHOUSE AND WINDOW GARDENING.

HYBRIDIZING.—In my last letter I said that I never attempted to cross-breed roses, but that I would try a few experiments in order to enable me to explain the process more simply in this article. I have now done so, and I may safely affirm that had it not been for this anxiety to dish up a nice story for *THE COTTAGE GARDENER*, I should have lost one of the greatest treats I have experienced for many years in the examination of flowers. If I have cut up one flower, I am within the mark in saying that I have dissected many thousands, and out of that number I do not recollect of having met with a single instance where the interior of the young seed vessel was so arranged as in the rose, and I was not aware that such conformation as there presented itself was to be met with in the whole vegetable kingdom; but more of this another time. Every school-boy may be said to possess a certain knowledge of comparative anatomy as soon as he is able, in his own way, to dissect *ponologically*, if there is such a word, and compare on his palate the differences which exist between a strawberry and a cherry; a fact which I learned from the first botanist of this age, who, on his way to place two of his sons at a celebrated academy, called in to see a rare collection of plants then under my charge, and after seeing all

the "new things," the conversation, naturally enough, turned upon botany, and amongst other questions I asked him if the two young students were likely to turn out "chips of the old block?" "Why, yes," he replied, adjusting his spectacles, "both of them have already acquired the most essential point requisite for an expert botanist; for," he continued, speaking botanically, "each of them has a good practical knowledge of comparative anatomy;" meaning, no doubt, that they made some proficiency in cracking nuts, eating apples, sucking peaches, and all that sort of anatomy. Our knowledge of flowers, and of the incipient fruit which accompany them, must be limited indeed without some process of anatomy, if only to split a rose into two or four parts with a common knife, as I did the other night. A hybridizer may cross and re-cross his flowers till doomsday, but, unless he makes himself familiar with the different parts which compose a flower, their various arrangements, and the functions allotted to each, he is deprived of half the pleasure and interest which the subject never fails to impart. Therefore, this involves a certain smattering of botany, the slightest knowledge of which would also add to the zest of dissecting a flower for the first time.

Now, with only the most superficial knowledge of these things, I began last week to dissect flowers of the various sections of the rose, from the single wild brier, through the various stages of semi-double flowers, on to double and the most double ones. From this summit I descended on the opposite side through all the gradations of that malady which we call "green eyes," or centres. I had eleven flowers in all, and most of them I had to split into four parts, and after two hours' examination and comparison of all the parts, although, as I have said already, I never crossed or opened a single rose before, unless I can shew you how best to go to work at once with them, I shall engage to forfeit my nationality, the severest punishment a highlander can undergo, and get through it with a safe neck. I believe I have read the substance of all that has been published on the subject of morphology—a science of recent birth, and which explains the nature of vegetable monstrosities, of which the green centre in a rose flower is a sad but familiar instance—and from all this reading I did not obtain so clear a view of this new doctrine as from the dissections of which I am now writing.

Procure a quantity of green-centred roses to-morrow; let them be in different stages of transformation, from the changing of the pistil to a rough grey surface, up to the full development of a green leaf; cut them into four pieces, and unravel the pistils one by one from the central mass in which they are all jammed together; compare these in all their stages with the perfect pistils in the centre of a single rose, and you may gain a tolerable insight of the rudiments of morphology, and you may see in reality a more strange metamorphosis of parts, and their progress in the transition state, than the rich mythology of Greece supplied to the pliant quill of Ovid. The fact before you of a lady of the bedchamber, or a maid of honour to the queen of flowers, being transformed into a green-eyed Susan, or to a perfect rose-leaf, is even more singular, though not so sad, than that of the lovely Thisbe being turned into a mulberry-tree after her tragical end with Pyramus, her unhappy lover, whose fates every school-boy has sincerely and most affectionately lamented.

Now procure a single rose, the blossom of a wild brier will do, and let us examine the parts in success-

sion. In all roses the flower is seated on the young hip, or seed vessel, and every seed vessel, from a rose hip to a full ripe peach, is called by botanists a *pericarp*, a word you will easily learn when I tell you that the meaning of it is "round the fruit or seed," and is taken from two Greek words, *peri*, about, and *karpós*, a fruit. Therefore, an apple is a pericarp, and so is a pear, and a peach, and, in eating these, we do not eat the real fruit of the tree, but the pericarp of the fruit, for the seeds are, in reality, the fruit. The rose, then, is attached to the end of the pericarp, and we must have them both. In most flowers the different parts are arranged in four whorls, or rings round the stem as a centre. It is so in our single rose, the outside covering or *calyx* is one whorl; then the single row of *petals* is the second; the third whorl comes next, and is composed of an indefinite number of *stamens*, or "gentlemen at arms," as they really are, with powdered heads, in the shape of dusty pollen; and the centre whorl is composed altogether of *pistils*, her majesty's maids of honour, all of whom—and they are many—are desperately tight laced by the contraction of the mouth of the pericarp, through which they issue into the presence and very centre of their lords. Here, then, we have the pericarp, calyx, petals, stamens, and pistils. The two last-named are called the seed organs, and the calyx and petals, floral envelopes. The stamens in the rose are very numerous, and they also are arranged in whorls. In the progress of a single to a double rose, one or more of the whorls of stamens are converted into petals, and, according to the number of stamens so converted, is the degree of doubleness of the flower; and in a perfectly double rose all traces of the stamens have disappeared. The beauty of the rose, therefore, is owing to the transformation of the male organs into beautiful rose petals; the pistils, or female organs, may or may not have retained their original power of fecundation, and, with the assistance of ripe pollen from another flower, will produce a cross offspring, and the hand of the cross-breeder might easily effect a cross at this stage.

If things would continue in this condition, we should have no cause of complaint or disappointment, for, from my slight acquaintance with the rose as a breeder, I am led to believe that it is from flowers of this stage of development that we are to look for success in crossing them. It is not to be supposed, however, that every double rose, even with the female organs in perfect development, will produce seeds, although, from not having any experience in crossing them, I cannot speak positively to the fact; I merely reason from analogy with other families with which I am well acquainted, for I often find that plants, belonging to families that have been already extensively crossed, like the rose, with all their organs of reproduction apparently in a perfect state, are yet incapable of breeding, or, in other words, are absolutely barren. The cause of such barrenness is a total mystery to the most learned, for I have had conversations and correspondence with many eminent physiologists on this very point, and with M. Decandolle, the present professor of botany at Geneva, among the rest. When he was in England, in 1837 or 38, I forget which, he called where I then resided, and he conversed freely on this subject, and proposed a correspondence, but, though he speaks English fluently enough, he would only write his letters in the French language, and I was obliged to relinquish the pleasant task, as I do not understand the French language. He told me, however, that

his father—now no more—whose shoes he is now fast filling, and who was the first authority in all matters relating to botany and physiology, could never fathom the mysteries of cross-breeding so far as to have been able to lay down safe rules for its application. Therefore, as I have said already, we must work on step by step. No doubt all our great nurserymen could, from their extensive experience, tell of many fine roses that are sure breeders, and of others, equally good, from which no seeds can be obtained. A list of such plants would be a welcome article for any of our gardening periodicals, and to none more so than to *THE COTTAGE GARDENER*. In the absence of such a guide, all that I can offer at present is to point out the necessary conditions in the stamens and pistils of a rose to render them fit subjects for experiments.

I have said that it is not necessary that the stamens should be present, it is indeed safer that they should not be so, except in the form of petals, thus rendering the flower perfectly double, and therefore having no pollen of its own to interfere with the experiment. But it is essential to success that the pistils be in a perfect state, which has not been the case in every instance in those roses I have examined. To be in a proper state for the pollen, they should be perfectly smooth and fleshy, with their tops (*stigmas*) moist with a clammy fluid, which is their element of fecundation. The rose which is made choice of for the other parent cannot be a perfectly double one, as in that case it would, as we have explained, be without stamens, and could yield no pollen. But the more double it is the better, provided it has a few perfect anthers charged with pollen, which is easily known by their powdery appearance. The pollen of the rose is of a lighter colour than is generally the case with other flowers, and is ripe when it will fall from the anthers in the form of dust on the least touch. The best and easiest way of applying the pollen to the pistils is to cut away the petals, leaving the stamens attached to the top of the pericarp, (that top is called the *torus*.) Now, with the pericarp between the fingers, draw the stamen gently three or four times across the clammy stigmas of the pistils, and, if the pollen is quite ripe, it will adhere to the moist stigmas, and the work is finished.

After a while the pollen grains will imbibe so much of this fluid as will cause them to burst, and discharge their contents; then a chemical action is supposed to take place; at any rate, the mixed juice circulates through the pistil, the bottom of which, in the rose, is attached immediately to the *ovary*, which incloses the embryo seed. Now, what most surprised me was, that these ovaries, which, in reality, are the coverings of the future seeds, were placed inside the hip, or pericarp, in a widely different manner from the generality of such cases; but this is a question of no moment to the cross-breeder. There are various conjectures as to the mode by which the pollenised juice—to coin a new word—finds its way to the ovule or embryo seed, and, in my hurry the other day, I said that this compound juice circulates in the same way as the ordinary sap, but the truth is, the whole process after the union of the pollen is a perfect mystery. It is true that some have asserted that the contents of the pollen is formed into tubes of extreme fineness, and in that shape slides down through the *style* (stem of the pistil), and so, by means of the seed cord, or *placenta*, passes immediately into the ovule. But when we reflect that in pendulous flowers, like those of a *fuchsia*, for instance, these same tubes would have to slide perpendicularly

upwards, we cannot readily yield assent to such an extreme doctrine. Let us rather assign this part of the business to the care of the philosophers, who, no doubt, will settle it right enough some day or other. If we could but succeed in originating a double yellow perpetual moss rose, we ought to possess philosophy enough to rest satisfied with our own part of the business, and not interfere with that which is the lawful province of our betters.

The next division of the subject belongs more to morphology than to hybridization, but let us see whether or not we may derive some useful hints from this part also. As for myself, I am tempted almost to believe that if we could fathom the cause of the monstrosity of green centres in the rose, it might throw some light on the reason why the French growers have hitherto excelled the English in the production of superior new seedlings, and if so, it would prove a good hit. There must be some cause for every thing, although it may often, as in this instance, be difficult to discover it. We have already traced the progress of development from the single briar to the full blown rose, with the parts perfectly organised, only that the stamens have been converted into petals, all this being the effect of care and cultivation; but no sooner have we arrived at this perfection than the rose makes a retrograde movement, according to our ideas of a perfect flower, but no doubt in accordance with some natural law. The next move is in the pistils. Out of these, and these only, are the green leaves, which disfigure the centre of so many roses, formed; thus clearly showing that the nature of the pistils is very different from that of the stamens, at least in the first stages of monstrosity. As soon as the pistils begin to turn into green leaves, their legitimate office of conveying the pollen to the young seed is at an end, and they are, therefore, past use for cross-breeding, but they may yield to the influence of the pollen up to the moment of the first derangement; and as we know the stigma, or very point of the pistil, is the last part of the flower to come to perfection, whatever the disturbing cause which occasions the monstrosity, it must be in operation in the juices of the parent plant long before it reaches the pistils. We know, also, that certain peculiarities in plants, as well as in animals, are transmitted to their offspring; therefore, it is obvious enough that if the influence which causes monstrosity is already in operation in the juices of the plant, but not yet so far advanced as to hinder the operation of the pollen, this influence may be transmitted to the seedlings from such a cross; hence the difficulty of procuring fine double roses from seeds. It is not necessary that the young seedlings should manifest the green eye, to prove that they inherit some inherent quality from their parents which deranges the symmetry and beauty of their flowers—it is enough if the influence appears in any other form. Now, this brings us to the question, What causes the green centres in roses? If we knew the real cause we could apply a remedy, and this, for the production of new seedlings, would be of immense advantage. To make a short story of a long one, which has already exceeded too far, I may say that over-feeding in the absence of strong sunlight is generally believed to be the cause of green centres, and that most of the maladies or other peculiar appearances in plants have originated from the culture in the previous season or seasons. If this be so, the heavy and constant rains of last summer, and consequently the absence of sun heat and light, will account for the prevalence of green centres in

the rose this season. From all this, and from observations I have made on other plants, I am led to infer that the success of the French rose growers in raising so many fine seedlings is owing chiefly to the fact, that they almost always keep their breeding plants in pots, so as to have them under better control in respect to feeding. Indeed, I have no doubt at all in my own mind on the subject. Their clear atmosphere may also assist them; but the Germans have the same advantage; and the Italians, with a still clearer atmosphere, have not been able to compete with the French in this branch of gardening.

D. BEATON.

THE KITCHEN-GARDEN.

AMERICAN CRESS.—This is considered a good autumn and winter salad, and where the water-cress, for which it is an excellent substitute, cannot be conveniently procured, the American cress may be cultivated in any corner of the garden. The seed should be sown thinly in drills one foot apart, and the plants pricked out at the final thinning to eight or ten inches apart, or it may be sown in a drill to form an edging similar to a parsley edging. It is fit for use as soon as the leaf is three inches long, and should be pulled or picked in the same manner as parsley. About midsummer is the best time for sowing it, so that it may become luxuriant and well established by the autumn. If the crop is found to be pretty strong by the middle of August, a portion of it should then be cut back to ensure a good supply of new and tender leaves for autumn and winter use. We make it a rule to cut a portion of it back at three different times, by which means an excellent succession is secured. For the cottager or amateur who has but a small space of ground to spare, this variety of cress is a most valuable article; indeed no garden should be without it.

SEA-KALE.—Without a good share of attention at this season of the year, a fine and abundant amount of produce when the cutting season arrives must not be expected; but if all small and spurious shoots are carefully taken off, the surface of the soil kept well scarified, and liberal soakings of liquid-manure, with salt dissolved in it, applied, good, strong, clear crowns, for producing the next season's crop, will no doubt be the result. The blossom shoots should be taken off early, with the exception of one or two which may be required for seed.

RHUBARB, as soon as the cutting season comes to a close, should be liberally supplied with strong liquid-manure, so that an abundant and luxuriant produce may be secured for the next season. It is a very erroneous system to allow either sea-kale or rhubarb to stand its chance, for, as soon as the cutting or gathering season has passed, that is the time when such crops are the most in need of some assistance.

TOMATOES.—The success of this crop depends much on the management of the next few weeks. Keep the plants to a leading shoot or two; if space will admit of it the side shoots should be kept thin, and stopped a joint above the show of every bunch of blossom. When the fruit is sufficiently set, each bunch should be thinned of all abortive small fruit, leaving only a few of the strongest and best shaped ones at the base of each bunch. If any quantity of small green fruit is required for pickling, the bunches may be allowed to remain a short time longer before they are thinned, and then considerable assistance

may be given by applying liquid-manure to swell off the remaining fruit.

TURNIPS should now be more fully sown wherever ground can be spared, as the quality of those sown now will be good, and they will come in at a time when a change of table vegetables is desirable.

ROUTINE MANAGEMENT.—All spring sown crops should by this time have had their final thinning; so long as the hoe or scarifier can be used among the plants, it should be kept steadily in operation. All kinds of autumn and winter crops must now be got out, between the crops of peas and beans, and on all spare ground that may become vacant. Growing crops of *Dwarf Kidney beans* should be earthed up in good time, to prevent the wind from breaking them. Successions of *Scarlet Runners*, too, should now be planted. Those that have sticks or strings for climbing should have attention by leading up a shoot to each; and those intended to be kept dwarf must be regularly attended to, by stopping the leading shoots. When the crop is well established the application of diluted liquid-manure will be found beneficial. A short row of *Scarlet Runners* may be made, by due attention to stopping or pinching out the tops of the shoots, to produce enough for the regular consumption of a good-sized family, particularly if the beans are gathered when in condition, and are not allowed to rob the plants by being left until they become too large for cooking.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 31.)

DURING May, the whole country may be called a garden. Wherever we turn our eyes we are charmed with glowing blossoms, among which the apple-tree stands almost unrivalled. Nothing can be more lovely than its delicate clusters of flowers, so perfect in form, and deliciously fragrant. It has even been chosen by Solomon to describe the perfection of Him whom man rejected, and thus gives it a sacred interest in our hearts. Whenever we see the rich bloom of an orchard, we are sure that a cottage nestles near it; it gives us a feeling of comfort and brotherhood, and peculiarly distinguishes the snug, happy homes of old England. Let us, as we gaze on the beauty, inhale the sweetness, and expect the future treasures of these valuable trees, remember Him, who is "among the sons of men" as "the apple-tree among the trees of the wood." When the cottage gardener goes forth to his work in the early morning, the rich scent of his blooming trees should raise his heart with double praise to God, for they speak of much more precious things than winter store, if he will listen to their voice. The wild cherry is silvering the woods, the wild clematis decking the hedges, the fields are glittering with buttercups and daisies—those first of infant joys,—and our country rambles are now only embittered by a muddy lane, or a rustling snake. All else is beautiful; the thickening meadows, the rising crops, the soft deepening tints, and the snowy May, which almost gives a wintry whiteness to the scene, form such a world of loveliness, that we almost ask ourselves if sin and sorrow do indeed dwell within it?

In the simple gardens of *my* readers, there is not much to do just now, except to weed and clean. The animals are sown and coming up, therefore the beds should not be much disturbed, unless to remove

weeds, or prick out perennials and biennials from the seed-beds. Lid sticks or stakes be placed soon to sweet peas, convolvulus, &c., as they should receive support the moment they require it; and I have often found sweet peas, &c., so entangled together, by forgetting the sticks at first, that I have injured them by trying to untwist them, and they have not done well in consequence. In borders, where seeds are not sown, rake continually, in order to keep them clean and neat; rake well *under* plants and shrubs; it looks very slovenly to see a neat appearance kept up as if for show, with a dry, hard, untidy space within the leaves or boughs. Clip box edgings, if old and rough; always let them be neat and close, and clean at the roots; weeds should never be suffered to spring up among them. Box is beautiful as a shrub, it is beautiful as a bower, it is beautiful as a high screen to gardens, it is beautiful as one of the vivid scriptural emblems of the glory of the Church of Christ. Rich, aromatic, and evergreen, it is joined with "the fir-tree and the pine-tree," to picture forth the beauty of that "sanctuary" which was opened "to all believers," when the "worldly sanctuary" was done away. It continues to clothe the heights of Lebanon, it still "beautifies" the forsaken land, that shall, ere long, "blossom as the rose," and flourishes in a wild state in Europe, Asia, and America, thus bringing before the eyes of many nations the promises of God. The box opens its delicate green flowers during this month, as do the pink hawthorn, the lilac, and the laburnum. The pink hawthorn is a beautiful addition to the lawn or shrubbery. Its rich colour mingles well with the laburnum, the goulden rose, and the white and dark lilac, and it is very ornamental when standing singly, if the lawn admits of it. If a white and pink variety are budded on the same stem, the effect is good, or planted so closely as to interlace each other. The laburnum is a very gay and graceful tree; when in full flower it looks almost like a golden fountain. How beautiful the hills of Switzerland must look, covered with its rich blossoms, for there it grows wild and abundantly, and must often remind the English traveller of his happy home. The Scotch laburnum has larger leaves and flowers, and blossoms later in the season. The lilac, that sweet cottage shrub, is one of the loveliest and most spicy of the treasures of the soil. We received it first from Constantinople, about three hundred years ago, and it still continues to decorate the palace and the cottage—a general favourite. It blooms in some parts of Africa and Asia in a native state, and yet it will grow well even in London; though in the close and crowded yards, where no fresh air can enter, it only puts forth leaves, yet they are almost flowers to those who live in such unlively precincts. There are several common varieties of the lilac, all beautiful, and there is the Persian lilac, a very elegant shrub, both in leaf and flower. Its leaves are more pointed, and its flowers more feathery in their form than the common kind, which gives the shrub a less formal air, but in fragrance I do not think it can surpass them. I sometimes see the lilac mixing itself in the cottage hedge, and forming a lively, pleasing ornament to the bowery lane. If they were sometimes planted among clumps in parks and paddocks, they would add much beauty to the home scenery, and so would the laburnum. I have seen them in such situations, and admired the grouping much. How brightly, too, does the country glitter with that sweet and brilliant plant the furze! It is quite the pride of May and June, in spite of many rivals, and spreads itself, like a rich carpet,

over hedges and downs, as well as among hedges and dingles. A common, covered with furze blossoms, is enchanting both to sight and smell, and when grown in patches on the lawn, or among shrubs, is a lovely addition to them. No wonder the Russians pet it in the greenhouse as one of their choicest flowers. How many "common" plants and flowers we should esteem, if they would but refuse to flourish in the open air! Among the snows and dreary plains of Russia, our wild, unheeded flower becomes a treasure, thus teaching us to prize our fruitful, fragrant land more than we do. The furze may tell the fur-clad Russian, as he paces his conservatory, of the flowers, and fruits, and verdure of its native soil; of the nicely tempered freedom of its highly favoured people; of their peaceful homes, their busy labours, their cottage gardens—those simple, useful enjoyments, so full of interest and profit; above all, it may tell him of the pure, unsullied light that shines on British soil, cheering the humblest dwelling, and refreshing the weariest heart with "bread" that never fails, and "water" that never runs low. Let us rejoice to think what pleasant things England's flowers may tell to other lands, and let us all pray that her Protestant walls and bulwarks may stand firm, without which, neither wood, nor stone, nor steel, can guard her shores.

TO CORRESPONDENTS.

CUPHEA PLATYCENTRA (W. F. G.).—This plant was found originally on a batch of orchids from Guatemala. Mr. Smith, gardener to J. Anderson, Esq., of the Hulme, Regent's Park, was the raiser of it; and the plant, so discovered, is the parent of all the plants in this country. It is a beautiful perennial, half shrubby, with scarlet tubular flowers, and is found to be sufficiently hardy to live in the open air here from May to September. It is easily propagated either by seeds or cuttings, the latter flowering most freely. It requires a cool stove to winter in, but a greenhouse is too cold. In the stove it will flower all the year. Plants of it make a beautiful bed in the summer months, provided the soil is well drained, and not too rich. **DAPHNIS AND ANTICYCLANES (A Constant Reader, Islington).**—You have, indeed, been unfortunate to lose your daphnis and ranunculuses, but, as your ground is so full of slugs, there is no wonder. See our remarks about the destruction of slugs in this Number. In the autumn drain your plot effectually—remove as much of the clay as will enable you to lay in your garden a foot of fresh clean soil. Without this your garden will be a constant source of vexation instead of enjoyment.

CAPE JASMINE (R. P. Appleford).—This (*Gardenia radicans*) is an excellent window plant while in flower, and in a warm room may be kept in health all the year round. Treated that way it is an autumn-flowering plant. The cause of your's fading its flowers and turning yellow in the leaves is that the plant had been forced in a close, damp, hot pit in the spring.

LIME (S. F. C.).—For gardening purposes, lime obtained from either limestone or chalk is equally good, and you may apply it to your vacant ground in any manner, and a large good farmer gratefully us beyond expression, and shall be published in our next Number.

OWLS (W. H.).—You can obtain a pair for from 5s. to 7s., at J. Hallen's, No. 9, Little St. Andrew-street, Upper St. Martin's-lane, London.

VINEGAR PLANT (—).—Sugar dissolved in water alone will take four times as long to become vinegar as they do if a vinegar plant be placed in them.

PLANTS ON GREENHOUSE STAGES (—).—The less crowded they are the better, because the less do they shade each other. The reason they are usually put close together is that there is a deficiency of room for the plants requiring the protection of glass.

CHRYSANTHEMUMS (J. H. Horeg).—Mr. Weaver thinks "the two best dark purple chrysanthemums that he knows are *Campestrane* and *Pilot*, but that *Flecker* is first-rate, and a large good formed flower. The two best compact whites that he knows are *Coronet* and *Vesta*, but *L'ange Gardina* is a real good white too. *Victory* Mr. Weaver does not like well enough to grow it. He grew it two years ago, and a fine specimen he had of it. *Annie Sauter*, he says, is one of the very best of yellows, and *Superb Clustered Yellow* he thinks the next best."

GERANIUM CUTTINGS (Amateur).—Plant these about the middle of July exactly according to the system directed generally for "cuttings," at p. 14 of our first volume. In about six weeks they will be rooted, and may be potted singly in small pots. You may preserve your geraniums through the winter in your room; and for an admirable system of culture, we refer you to p. 150 of the same volume.

GREEN LEAVES IN CENTRE OF ROSES (Thid—Pupit).—The pistils are converted into leaves, either partially or entirely. The cause of this transformation is obscure. See what Mr. Benton says

to-day upon this very prevalent example of morphology. We shall probably recur to the subject.

WOOLLY OAK GALL (Cynips quirk).—Your specimen had been mislaid, but we saw it and we had written our answer. It is the gall we concluded it to be from your description.

DEFORMED CUCUMBERS (A Subscriber from the First).—Although your plants are healthy their fruit is crooked, and yellow at the ends when young.—This arises either from the fruit being unequally exposed to the light, or from being exposed to sudden changes of temperature. If the leaves or roots are so affected, these changes, whether from the season or from the bed declining in heat, crooked fruit is the consequence. You will have seen that we quite agree with you as to the benefits arising from village horticultural societies.

THREAD-LIKE WORMS (W.).—These worms which, as you say, "are like threads, almost as tough, and from three to six inches long, some nearly black, and others of a grey colour," are of the genus *Mermis* of Dujardin, and have been mistaken for species of *Gordius*. We have observed them in our own kitchen-garden this spring, on the face of the ground, and after a heavy fall of rain. Some naturalists believe that they prey upon other insects, but nothing certain is known about their habits. A very full notice of them is in Jernyn's "Observations in Natural History," p. 303.

RASPBERRIES DEFICIENT IN BLOSSOM (An Admirer of your Journal).—Your raspberries have "between one and a half dozen and two dozen suckers arising from each stem." Now, indeed, then, that they are deficient in blossom; for you may remember, as a rule, that just in proportion as any plant propagates at the root so does it decline in propagating by seed. Reduce the suckers to three or four at each stool, and by cutting off the roots every autumn in a circle, of which the radius extends one foot from the old stool, all round, you will have more fruit. Remove all the suckers but three or four every spring as fast as they appear.

HEATHS (Thid).—The tips of these are turning yellow, most probably, from your giving them too much "water every day." They require very gentle root moisture and perfect drainage. Double pot them as recommended by Mr. Benton, p. 27 of this volume.

EXCESSIVE LIMING (Lilium).—You must, indeed, have put on "a large quantity of lime," to kill your standard roses, and so to injure your bulbs that you have not had a single flower. As soon as the leaves of the bulbs turn yellow take them up, and trench every possible spot, laying it roughly, to expose it to the air, but do not add any manure until the following spring. If you particularly wish for flowers at once, you might, after trenching, bed out potted plants of those flowers enumerated as suitable for the purpose, at p. 98 of our present volume.

HONEY DEW (Robert French).—Syringe with soapsuds your *Pyrus japonica* and China roses which have their leaves covered with this sticky exudation. Apply the soapsuds in the evening, and the next evening wash the trees thoroughly with clear water. This treatment repeated two or three times will improve, if not cure entirely, your trees. The *Pyrus japonica* is not so much injured. The staple of your clayey soil can only be improved by mixing thoroughly with such lighter materials as coal-ashes, sand, and fine bricklayers' rubbish. A good coating of the sea-sand, fresh from the coast near you, and treed into your spare pots, would be one of the best of applications for the purpose. You will find all the particulars of the treatment of soil, liquid-manure, and potting roses, in our previous numbers.

TROTEOLUM TRICOLORUM and TREE CARNATION (Rose Gardener).—This, in a sunny window, but shaded in the heat of the day, though in flower, has its leaves beginning to fade; and your Tree carnation sending out rich shoots. Your *Trotaecolum* is ripe enough; it goes to rest now, like tulips and hyacinths, and springs up again in September or October. Keep it dry and in the soil during the interval in a store room. It is a good window plant. If you merely nip off the buds from the points of the side-shoots of your Tree carnation it will suffice, and enlarge the principal blossoms.

CHANGING A PRIMROSE'S COLOUR (A Lover of Flowers).—The different tints in primroses and many other flowers are sometimes influenced by particular soils, but cannot, with certainty, be changed artificially. Slips or offsets of the primrose will root better in a shady place than in an open border by the side of the pot plant.

LUCKERS (J. B. H.).—The only way to insert the seed in rows is by the drill, or by making little gutters or deep furrows with the hoe. The seed must not be buried more than an inch deep.

AZALEA COMPOST (Thid).—A compost one-year old and frequently turned, made of cow-dung, sand, and peat, will, probably, be as good as any other substitute for peat to azaleas.

CACTUS SEED (B. H.).—Sow your cactus seeds now in about an inch thick of pure sand, the rest of the pot fill with common small cinders. Water the sand before sowing the seeds, and merely press them into the damp sand, and sprinkle a little sand over them to imbed them. They will be up in three weeks; and, if not too thickly sown, may be left in the seed pot till near April, giving them but very little water after October till March. It is always safer to leave them in the seed pot the first winter; and with so small a quantity of sand, and such good drainage, they cannot possibly take any hurt. They would be safer reared in your greenhouse. Cacti reared last year from good cuttings will be best to flower next year.

LIST OF GREENHOUSE PLANTS (Thid).—Never think it "rudeness to drop us a hint." A list of greenhouse plants which may be reared from seeds or cuttings, as you suggest, will be given as soon as we can find room for it, but you see how crowded our columns are constantly.

AMARYLLIS LONGIFLORA ROSEA (Thid).—This is most probably the *Am. Crinum*, often called *Am. longifolia*, not longiflora. If so, the leaves are very long, and run out to a sharp point, whereas the points of the leaves of true amaryllises are blunt. Place the pot, which you say is a twelve-inch, in a saucer full of water till the end of August, if it is the *Crinum*, and it cannot fail to flower, for it is a half water plant. If it is a true amaryllis it must go to rest in

summer; they all do. The seashouses you mention are only biennials, and hardly that, and ought to be sown every spring.

CECILIUS AND SCARLET (J. Lower of Faversham).—These are best left in the ground, and the anemones may or may not be so treated, according to your fancy, as probably they are the common red sort; but fine fancy anemones must be taken up every year, when their leaves die down. These are not "trifling sources of inquiry;" there is nothing trifling about fine flowers. We cannot give an opinion on the yellow standard rose without seeing a piece of it in leaf. Different kinds require different treatment.

PONIES (Ibid.) are propagated by dividing their roots in the autumn or spring.

DOUBLE STOCKS (Ibid.) are difficult to strike from cuttings, but it is done occasionally, and you may try it.

STOCK SEEDS (Ibid.)—The annual sorts are best sown in the spring, but the biennial Drompton stocks, which you grow so beautifully in Suffolk, is not too late yet to be sown, but no time should now be lost.

SCARLET PELARGONIUMS, GERANIUMS (Ibid.) will not cross with the light window sorts. Watch what Mr. Beaton will say on that subject. You will see to-day how to know when the pollen is ripe.

JARGONELLE PEAR (Brookland Gardens).—We fear that the Jargonelle pear has long shown symptoms of what is termed "wearing out." This is much to be lamented, as we scarcely have an August pear fit to supply its place. What happens with you happens very frequently over the northern parts of the kingdom—"the ends of the shoots die off." Our plan has been to continue cutting out the decaying points, and space between the branches, to get them by slight top-dressings. The latter, if the tree be on a wall or fence, should be tied down; and on no account attempt to force the tree into a system of spur bearing.

ESPALIER TRAINING (H. S. R.).—The distances necessary for espaliers have been dealt with in recent Numbers of THE COTTAGE GARDENER. As a general rule we should advise from eight to ten inches; much, however, depends on the size of the leaf of the fruit, of whatever kind. When a tree is well trained, the espalier lines should appear distinct, like drill lines in a field. We are not aware whether the Espalier, or space between the branches, lengthens after becoming red wood; we dare say it does, but it so trifling a degree as not to be worth calculation. Apples on espaliers are usually finer fruit than on standards. Before planting your large piece of ground with apples, pay inform us what course of culture, if any, you intend to pursue between the producers can then advise you better. Give us, also, some idea of the prime object in view. The articles on training wall fruit will assist in due time, but in a progressive way. Note the No. for June 21st. We will soon devote a chapter to the subject of horizontal training as compared with the fan mode.

RHUBARB (L. R. Lucas).—Your rhubarb producing many small leaves, and quantities of flower stalks, though you manure it liberally, intimates that you cut too much from it; give half of your plantation a year's total rest, manuring liberally, cutting down the flower stalks, and giving liquid manure in the summer. Keep the other half in the same way the year following. Afterwards do not take so much from your plants yearly.

ASPARAGUS BEDS (Ibid.)—The time to make these is in early spring, so soon as you can get plants that have put forth their shoots about an inch long.

VINE IN A POT (Ibid.)—You may turn out this from the pot into the border in front of your greenhouse at once, the sooner the better, taking care not to disturb the roots. The Black Muscadine is a good grape for a greenhouse, but a Black Hamburgh is better.

GOOSEBERRY APRIS (Ibid.)—It will not do the trees any harm to remove the points of the shoots affected with this pest; but the best treatment is to dip them into a basin containing Scotch snuff. The ivy we think would soon overwhelm the Virginian Creeper growing by its side, if not kept within bounds by pruning.

PATY'S BEE-KEEPER'S GUIDE (—).—This little volume is published by Newby, 72, Northmore Street, Cavendish Square, and not by Groombridge, as we thought.

POTATO CULTURE (J. H. Horsely).—We shall be glad to have the results of your planting in every month, from September to March. Remember accuracy in experiments is their only source of value, therefore weigh your produce, do not merely measure or judge by the eye.

RITUBARR (T. Morgen).—The "Victoria" is the best for general purposes. Your "Gigantic," if a true specimen, is also a fine variety. In this case, if your soil is as good as your neighbours', and you manure liberally, you will soon equal him in size. The sand you enclose would do well we think for gardening purposes, there is scarcely any oxide of iron in it.

LAVOUREE (Ibid.) thrives best in a rich light soil, two or three feet deep, which should be trenched completely to the bottom before planting. When manure is added, it should be regularly mixed throughout the texture of the soil. The situation cannot be too open. It is propagated by cuttings of the side-roots, which spring from the crown of the plants, and run horizontally just beneath the surface, which may be planted in January, February, or early in March. Each set should be about two inches beneath the surface. The only cultivation the plants require is to be frequently hoed, and in autumn the decayed stalks to be cut down, and the earth stirred between the rows. The roots are not fit for use until three or four years' growth. The season for taking them is in December, January, or February. A trench must be dug regularly along each row, quite down to the extremity of the principal roots, which descend two feet and more.

HARD WATER (W. H. G.).—If compelled to use this for watering plants we should make it tepid, and add a ounce of sulphate of ammonia to every 30 or 60 gallons of the water, in proportion to its degree of hardness. Hardness, of course, is the common expression for describing the state of water with much of calcareous salts in it.

CHRYSANTHEMUM TRAINING (Ibid.)—When the shoots have reached the rim of the pot, Mr. Weaver coils them round and round again close to the rim; sticks being placed within it to the stem to.

WUZZER PINES (J. Cantwell Subscriber).—The gentleman who told you that "where white pinks are allowed to grow so others will last, but that they will all speedily turn white," either totally misinformed you, or you must have misunderstood him. Pinks of all colours grow side by side in collections, and whites among them, without injury.

UNDERGROUND ONIONS (J. D. S.).—These which have run up to seed, and have not multiplied by offsets, cannot have been underground onions.

OLDEN WOOD APPLE TREES (Clericus).—We never before saw the young shoots of these trees so miserably mildewed. As you say the trees are "small and manageable," try what washing them in a weak solution of salt, and then in clear water, will do. Follow strictly the mode we recommended for the vine; only, instead of syringing, you might dip the ends of the shoots into the salt and water and wash them there thoroughly.

BECOLI (Ibid.)—To grow this particularly fine one only requires the bed to be richly manured, and dug two spades deep, keeping the manure, however, near the surface. Fill the dibble holes with clear water before inserting the plant, and when well-established give them liquid manure occasionally.

VILLAGE HORTICULTURAL SOCIETY (Ibid.)—This may be established at any time; but the shows must take place at such times as the produce of the kitchen and fruit gardens are in perfection. Ask the Rev. Abner Brown, Pockley, Northamptonshire, for any relative information. We know that he will delight in replying.

MILDEN ON PEACHES (P. B. B.).—Some only of your peach trees have their young shoots and fruit affected, by this now prevalent form of vegetable disease; and the soil is well-drained. The subsoil red-marl. The fruit affected like that you sent us with great patches of mildew cannot recover, and we should advise it to be picked off. Treat the shoots as we have recommended "Clericus" to serve his mildewed apple trees. Dig down, also, so that you can get underneath the roots without disturbing those near the surface. If any have struck down into what you call "red marl," cut cleanly through them. You say that some of your trees were infested in a similar way last year; are the same trees all infested this year?

HORIZONTAL TRAINING (A. A. Clericus).—Nectarines will not succeed with this mode any better than peaches.

SOOT AS A LIQUID MANURE (Ibid.)—To get soot thoroughly mixed with water, put it into it in a false bottom pierced with holes over the soot, and, upon this false bottom, pour the water. It will gradually soak the soot, and may then be mixed.

BULBOUS AND TUBEROUS ROOTS (S. Gateshead).—Such flowers as the crocus, snowdrop, and common anemones, need not be taken out of the ground for winter storing; but the more valuable kinds are found to be thus best preserved from loss, and to bloom better and truer, in general, than those left in the ground.

PIGEONS (H.).—These fall when once year old.

PELARGONIUM PETALS FALLING (Legation).—The dropping of the pelargonium petals is a common complaint this season, and owing to the state of the weather last May, when we had a succession of dull, warm days, and then a bright, hot, sunny day. Slight shading is the best remedy in such cases. If the pistil and stamens are cut out as soon as the flowers open, it will prolong their existence.

WORKING PLANS (J. Bell).—Fray let us have an article from you, or from one of your neighbours, on heating greenhouses, &c., and the draught, &c., of their furnaces. No one will be more pleased with the subject than Mr. Beaton, who will respond to your request some of these days, but we fear he cannot give working plans. These things do not come within any department of THE COTTAGE GARDENER, but we shall think it over in our minds, and, depend on it, any thing that we can do well shall not be lost sight of.

NAME OF INSECT (Tyro).—It is the *Podura fuliginosa*, and probably comes from your cucumber bed, being found wherever decayed vegetable matter abounds; but this insect is not known to be injurious to plants.

CLAY ON GRAFTS (Eatoniensis).—You need not be in a great hurry about your clay; may never touch it the whole season. It is, however, beneficial to rub it off, after a rainy period, about mid-June, to remove the original bark, and to give the new one round; the latter not tight, by any means, but rather close. Take care to rub away superfluous shoots from the stock near the grafts, or they will rub them.

STRAWBERRIES NOT BEARING (Ibid.)—We would advise you not to propagate from these, but from good bearing plants.

CURRENT SHOOTS (Ibid.)—Shorten about one-third of all this year's first growing shoots about the middle of June, whether leaders or side shoots. Do not, however, totally expose the fruit to the sun until they are colored.

NAMES OF PLANTS (Lancastriensis).—We think your flower is *Hibiscus rosa-sinensis*, and you should have sent a leaf as well as a flower. *Genesera* will not escape Mr. Beaton's attention. (*A Flower Lover from Childhood*)—If it has leaves doubly crenate your flower is *Frimaria frutescens*; your ferns are *Adiantum reniforme* and *Adiantum palmatum*.

EARTHING UP POTATOES (Peter Love).—We never adopt this practice, it retards the ripening of the tubers, and diminishes the weight of produce.

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WEEKLY CALENDAR.

M D	W D	JUNE 28—JULY 4, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
28	Th.	Q. VIC. COR., 1838. Wasp Beetle seen.	Blue Corn-flower.	47 4 3	19 8 8	0 14	8	2 52	179
29	F.	ST. PETER. Water Chickweed flowers.	Yellow Rattle.	48	18	0 37	9	3 4	180
30	S.	Great Horse-fly seen.	Yellow Cistus.	48	18	1 2	10	3 16	181
1	SUN.	4 S. APT. TRINITY. Blackberry flowers.	Agrimony.	49	18	1 29	11	3 27	182
2	M.	Visitation B.V.M. Rooks roost on their nest.	White Lily.	50	18	1 58	12	3 39	183
3	Tu.	Dog Days beg. Hort. Soc. Meet. [trees.]	Wood Mallow.	50	17	2 33	13	3 50	184
4	W.	Wood Leopard Moth seen.	Copper Day Lily.	51	17	3 13	14	4 1	185

ST. PETER, the apostle, has his martyrdom commemorated on this day, and it is remarkable that St. Paul suffered on the same day, though in a different part of the world. When his Lord and Master summoned Peter from his occupation of a fisherman, to be, with his brother Andrew, "fishers of men," he substituted for his original name of Simon, that of *Cephus*, in the Syriac signifying "a rock." This in the Greek is *Petra*, whence our name of the son of Jona is derived. We need not follow this ardent, generous, self-confident apostle through all the notices taken of him in the New Testament. He was crucified at Rome in the year 67; and whilst, as transgressors, we may derive hope from the knowledge that Jesus loved Peter, even after the latter had denied all knowledge of him, yet let us remember that his repentance followed even upon one reproving look: that he shewed his repentance by a life devoted to the fulfilment of his Lord's commandments, and that in doing so he did not deem himself worthy even to die in the same position as that in which Jesus suffered. Peter, at his own request, was crucified with his head downwards.

VISITATION OF THE BLESSED VIRGIN MARY.—A festival was instituted by Pope Urban the 6th in 1383, to be held annually on this day, to commemorate Mary's visit to her cousin Elizabeth, immediately after the Archangel Gabriel had announced "the glad tidings" of her being selected as the agent for the incarnation of our Redeemer.

DOG DAYS BEGIN.—By dog days the Romans intended about forty days, during which occurred the delirious rising of *Canicula*, the Dog-star. But we calculate these days from the period when the sun comes in conjunction with *Sirius*, the brightest star in the constellation *Canis Major* (Larger Dog). These days last from July 3rd to August 11th, and the greatest heat of the year usually occurs during their continuance, because at this period we receive the rays of the sun most vertically.

TRANSLATION OF ST. MARTIN.—Martin, Bishop of Tours, was noticed in our observations on Martineau day (November 11th).

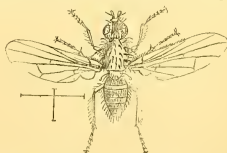
INSECTS.—In light soils, especially, the onion is liable to suffer from the grub or larva of the Onion Fly (*Anthomyia ceparum*, or *Scutophaga ceparum* of some writers). The gardener can see his young onions, when about the thickness of a straw, turning yellow, and the leaves sunk down upon the ground, may at once know that they are the victims of this insect. Even when of larger growth the onion is still liable to suffer from its attacks, and even up to the time of the bulb's full growth. If the outer coats of a young onion thus destroyed are stripped off, the grub is at once detected; but if the onion is older the grubs are often numerous. In both cases they will be found feeding on the very heart of the onion. The grub varies from about a quarter to half an inch long, is fleshy, shining, whitish, cylindrical, tapering from the head to the tail, and divided into twelve segments. The pores through which it breathes are yellow, and in the first segment. In about three weeks from the time of being hatched it changes into a chestnut-coloured, oval puparium, or case, within which is the real pupa. From this, in about a fortnight, the perfect fly comes forth, of the size of the cross lines, and appearing as magnified in our drawing. This is the female, and is entirely of a pale ashy colour, covered with black bristles. The male has a black line down the middle of the abdomen. The antennae and legs are black; the wings are transparent, almost colourless, but iridescent pink and green. The female inserts her eggs within the leaf sheaths of the onion, close to the ground. She continues to lay her eggs from May to September, producing several broods during that period. The latest brood remains in the pupa state through the winter, so that all old decaying store onions should be burnt as spring advances. The best preventive of this grub is to sprinkle gas-lime between the rows of seedling onions—its fumes being offensive to the fly. It may be well, also, to try spreading

This day is commemorated by the Church of Rome as that on which the remains of Bishop Martin were removed, or translated, to a noble shrine at Tours. The same tradition is recorded of forty days' rain occurring if it rains on this day, as is recorded relative to the anniversary of St. Swithin.

PHENOMENA OF THE SEASON.—One of the most striking phenomena of this period is the plague of *Aphides*. We do not remember ever to have seen them in such myriads, and so universal as they are in the present year. Every plant seems to have its particular louse, or aphid, and whilst we are writing this, we have upon our table specimens of the blackish currant louse (*Aphis ribes*), of the black dolphin or bean louse (*A. fabae*), of the green louse of the rose (*A. rosea*), of the bluish green louse of the honeysuckle (*A. lunicae*), of the whitish louse of the flibert (*A. coryli*), and of the radish louse (*A. brassicae*), the males of which are red and the females green. We could have others from the peach, the black currant, the sweet pea, and the apple, but our catalogue is sufficiently long, and as we look upon the total destruction they have brought upon a honeysuckle, we can understand more forcibly the plague of the flies wherewith "the land of Egypt was corrupted," and how powerless is man when God chooses to humble him even by an assailant as contemptible as an aphid. Mild winters, and cold moist springs, are favourable to the production of aphides, for in such seasons the tissue of the young shoots of plants remains long juicy and unripened into woody fibre. This green juicy state is that most productive of food for the aphid; and it is a wise provision that animals are always prolific in proportion to the abundance of their food. The female aphid during summer can give birth to twenty-five a day; and, upon data admitting of no dispute, it is shown that during her life she may see around her descendants amounting to the enormous number of nearly six millions! No wonder, then, that during our present season of tardy vegetation aphides have been so injuriously abundant.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
28	Rain.	Stormy.	Fine.	Fine.	Showery.	Fine.	Fine.	Fine.
Highest & lowest temp.	62°—50°	80°—51°	63°—40°	74°—47°	69°—43°	74°—58°	76°—54°	69°—56°
29	Showery.	Fine.	Cloudy.	Fine.	Fine.	Fine.	Fine.	Fine.
	69°—48°	83°—52°	65°—48°	83°—54°	73°—51°	76°—57°	75°—55°	71°—48°
30	Fine.	Showery.	Cloudy.	Fine.	Fine.	Fine.	Fine.	Showery.
	67°—52°	75°—50°	67°—49°	73°—50°	73°—53°	73°—48°	73°—54°	67°—37°
1	Cloudy.	Showery.	Fine.	Stormy.	Rain.	Fine.	Cloudy.	Cloudy.
	63°—59°	74°—50°	69°—52°	79°—54°	71°—52°	70°—58°	72°—53°	65°—46°
2	Cloudy.	Showery.	Fine.	Rain.	Showery.	Cloudy.	Cloudy.	Cloudy.
	69°—60°	69°—46°	73°—58°	62°—53°	65°—56°	73°—59°	64°—51°	68°—56°
3	Fine.	Cloudy.	Fine.	Cloudy.	Stormy.	Cloudy.	Cloudy.	Rain.
	73°—55°	73°—55°	78°—59°	72°—52°	84°—52°	80°—46°	73°—53°	67°—52°
4	Fine.	Cloudy.	Fine.	Cloudy.	Fine.	Fine.	Fine.	Cloudy.
	69°—53°	76°—59°	78°—55°	68°—55°	73°—56°	92°—66°	83°—45°	73°—48°

powdered charcoal among them in a similar way, for the fly is said to deposit her eggs in this powder as readily as in the onion plants.



THE cold wet spring and ungenial summer of last year, followed by the mild winter, and a spring this year like that of the preceding, have fostered those plagues of the gardener, the aphid, the slug, and the mildew, until their ravages have been more general and more destructive than we ever remember them

in former years. The heat and dryness of the month now closing has done much towards the restraint and destruction of the two insect plagues, but the MILDW still continues, and in some places, and under some circumstances, even in an exasperated form. To this we will, therefore, call to-day the

attention of our readers, premising that whether on the stems of wheat, or on the leaves of the chrysanthemum, pea, rose, vine, peach, apple, cucumber, or herb-berly, and on all have we seen it this year, it appears in the form of minute fungi, varying in colour and form, the roots of which penetrate the sap vessels, rob the plant of its juices, and disturb both its secretory and respiratory processes. It is quite clear that some of these fungi spread from plant to plant by means of their myriads of minute seeds being conveyed to their stems and leaves; as in the instances of the vine mildew being communicated to the chrysanthemums and cinerarias, as mentioned at p. 55 of the present volume. But we are also of opinion that in many instances these parasitic fungi are communicated to plants from the soil. The seeds of these minute yet destructive sap-suckers are wafted during their season of production in millions over the land, and will not only survive our severest winters, but will vegetate and emit seeds though attached to bodies widely differing from those living forms upon which they thrive most luxuriantly. Thus crops of parasitic fungi have been raised upon clods of damp earth, and we remember to have seen a large mass of that which is known as the smut in wheat (*Uredo segetum*) growing over the interior of a paper pill-box, in which some grain infected with it had been placed. Under such circumstances it is next to impossible to guard our plants from contact with the seed of these fungi, and after adopting, in addition to especial cleanliness, an annual dressing of our stoves, greenhouses, frames, walls, and the trunks and branches of our trained trees, with a mixture in which sulphur predominates, as recommended at p. 76, we have then done our best in the way of prevention of the destructive invaders. But another question has to be considered; can we do nothing to the trees and plants themselves rendering them less liable to suffer from their attack? We entertain a very strong opinion that we can, and we believe that the following observations, before made by us in another place upon the mildew which affects the peach, are applicable to all other plants subject to be similarly affected.

The white parasitical fungi, that are either the cause or injurious consequence of the peach-leaf mildew, are *Oidium cryspifolius*, *Sporotrichum macrosporum*, *Torula botryoides*, and *Erysiphe pannosa*. We have little doubt that these fungi never attack plants that are in good health, for we entertain the opinion that it is only the sap of diseased plants—sap in a state of decomposition—that is suited to be the food of the fungi. Prevention, therefore, is preferable to curative applications, and we have no doubt that if the peach-tree is kept in due vigour by having the soil well drained, and prevented from excesses of either moisture or of dryness—and if its leaves are similarly protected from being exposed to

sudden atmospheric changes—they will never be visited by mildew.

We are justified in this conclusion, because with this disease our peach-trees, in the whole course of our practice (which has extended over many years), have seldom or never been troubled. Mildew of all kinds generally accompanies an impeded root action, and we have generally found that stagnation suddenly caused, whether by excessive heat or drought, is liable to produce it, more especially if succeeded by much solar light. We have little doubt that in such cases the elaboration (by overtaking or being in advance of the absorbing power) produces more highly concentrated juices, which are adapted to be food for this obscure class of parasites. The best preventive is a good top-dressing of rotten manure in the early part of June, and as soon as drought sets in a thorough soaking of water. If caused by bad and deep borders, the remedy must be sought in thorough drainage, or an entire renovation of the soil.

There is no doubt that some peaches are more liable to be visited by this disease than others, and those are the kinds which are most luxuriant growers. It so happens that most of these have no glands at the bases of their leaves. This was long since noticed, and again lately commented upon by Mr. Blake, Secretary to the Croydon Gardeners' Society. He observed that the kinds which have no glands are all subject to mildew; such as Double Montagne, Ford's Seedling, Red Magdalen, Noblesse, Vanguard, Barrington, Grimwood's Royal George, Belle Bausse (Grosse Mignonne), and Early Galande. These kinds are all liable to be affected with the mildew, whether planted indoors or out, in any part of England; but then it is soon stopped; a little slacked lime and sulphur vivum settles it. There are a number of peaches, and very fine ones too, that possess glands; some with one, two, or three pairs of ovate, and some with the same number of reniform glands, all of which kinds resist the mildew. Mr. Blake trained the shoots of those with glands over those infected, and they would not receive the infection.

Similar observations are applicable to the mildew on the vine, apple, and cucumber. In every instance the grossest and most luxuriant growers are worst affected. At this present time we know of two vine-ries communicating by a glass door with each other; in the one the vines are vigorous and luxuriant, with their roots in the border, and they are severely mildewed; in the other vinery the vines are less luxuriant, and some of them, of compact habit, growing in pots, and these are without any mildew upon them.

IF THE COTTAGE GARDENER never wrought any measure of good further than that which is so unpretendingly acknowledged in the following letter,

we still should feel, gratefully feel, that we have not been labouring in vain. To announce this thus prominently for no other reason than because we would have our good work discerned would be no motive deserving of reprobation; but we do it from another motive, viz., to sustain what we urged the other day in favour of village Horticultural Societies. We then shewed that these societies are an efficient mode of encouraging a taste for gardening among the tenants of "the cottage homes of England;" and this letter bears ample testimony to the happy consequences springing from such an aroused taste.

"In this, my first letter to you, I feel it a duty to bear my humble testimony to the great good, moral and physical, your important work has conferred upon me, and I trust it has also been so to many others. At the time your work appeared, from its novelty I was induced to take in the Numbers as they appeared, and then followed a strong desire to have a garden of my own, which I succeeded in obtaining about the middle of February, and from that time I may date a complete reformation in my character. Previously, the money and time I had to spare was spent in the public-house; now, both are spent in my garden, and to what a different end I leave you to judge. I never had better health than now; I have more money at command; my wife and children are better clothed and fed, and I am *happy*; and for all this I feel I am your debtor. I am afraid of trespassing on your time, or I might fill the sheet with benefits. After this I need scarcely say that your first volume has the proudest place on my book shelf. And now, having said more than enough, perhaps, of myself, let me say something for others. I have been trying the gas-lime at your suggestion. When I entered on my garden (which contains 770 square yards) it was quite smothered with weeds and grass, having been neglected last year. The walks were like a grass-field in appearance; and after cleaning them the grass still sprang up, and caused me much trouble. I then, after the second scraping, thought of the gas-lime, which I applied—drawing it thinly over the walks with a spade, and crushing the lumps. I have now clean and *hard* walks; not a blade of grass has appeared, nor anything except the dandelion, which still pushes through. I have tried it also with potatoes, and the six rows where it was dug in previous to planting are easily to be distinguished by their more healthy appearance. As a top-dressing I also tried it, and here its effects are wonderful. I threw it thinly over the half of a border where I planted some red potatoes, what are called here cups, the other half I left without; and now, while the former is without a weed, the latter is quite green with chickweed; and the potato tops are fully two inches higher on the lined ground than the other."

S. F. C.:

EITHER next week, or the week following, accordingly as our arrangements may be completed, THE COTTAGE GARDENER will be enlarged, without any extra charge to its subscribers, to sixteen pages. Of the four pages thus added a portion will be devoted

* We have the full address of the writer, but for obvious reasons merely publish his initials.

to advertisements, and the remainder to additional information in our present departments, and to one new department—THE STOVE. We do not make these additions without having kept primarily in view how we can increase our utility. By enlarging our size we shall not only be able to make the pages devoted to advertisements form a cover to each weekly number, so much desired by some of our subscribers, but we shall be able to devote more space to each branch of gardening, and to give directions for the culture of stove plants, many of which we find either are or can be cultivated by our readers. When these arrangements are completed we shall be the largest and cheapest periodical devoted to gardening, and were it necessary we could fill some of our columns with testimonials of even a higher and more gratifying character.

THE FRUIT-GARDEN.

TRAINING YOUNG TREES IN GENERAL.—By this period young and healthy trees will have made lengthy shoots; and, where it is desirable the trees should take any specific form, much pains must be taken in the early period of their existence, in order to force them to assume the desired form. Modes of training are so various that we can do little more than speak of general principles. First of all, we advise that the distance of the main leaders be taken into particular consideration. We have known many a capital mode of training defeated by neglect during the first year or two in this respect. The distance of the main leaders must be regulated by the character of the tree, in regard of its partiality for light, and the size of its leaves. Where the tying down system is intended to be carried out, the principal leaders should be a considerable distance apart. If on walls, such as the pear and the plum should be about ten inches, and the apricot about eight inches. As for the peach and nectarine, we may suppose them to be on the fan or radiating principle; and all we can advise about these is to place the shoots at such distances as that the leaves may overlap each other as little as possible. One point we must here advert to in connexion with the early training of young trees, whether on walls, espaliers, or as dwarf standards. Young trees, for a year (or it may be two years) after planting, are apt to produce but a very few shoots, and these may, in the second year, take a somewhat luxuriant character. Now, part of the extra strength concentrated, in such cases, in the principal stem, may be diverted into the production of an increased number of fresh shoots, which will prove of much service in assisting to form the future fabric of the tree, merely by binding the grosser shoots down betimes: this will cause more shoots to be developed than otherwise would be the case. Since the shoots which are making rapid growth, then, must be trained in the direction or form they are intended to assume, let it be done as early in the season as possible. Sometimes it happens that central shoots in young trees of the peach, the plum, the apricot, and the pear, are *exceedingly* luxuriant: when such is the case, it is highly advantageous to pinch off the point of one or two, in order to produce an increased amount of

shoots: by these means the wall or trellis will be much sooner covered than it would have been. Such pinching should be performed as early in June as possible, in order to give time for the young spray to become ripened.

HEDGES.—We would here direct the attention of the cottager to his hedges, to which he cannot pay too earnest attention, for what is a cottage or allotment garden without a good fence? The first thing necessary in establishing a good hedge is to *keep it free from weeds*. Some people seem to think that it does not matter about a hedge being a little foul—they are much mistaken: one half of our hedges are spoiled during their earlier stages by weeds alone. If the quick takes the mildew early, we find it the best plan to dub or clip it immediately. The next set of shoots will very probably prove free from this pest.

THE VINE IN-DOORS.—It is now high time to redeem our promise of assisting gardeners who possess a small greenhouse in which they attempt to carry out grape culture, as well as that of plants in general. Most of the plants which were inmates of that greenhouse through the winter are now placed out of doors in some sheltered situation, and their place supplied by the annual tribes, half-hardy gay flowers, Achimenes, Gloxinias, Sinningias, Thunbergias, Torenias, &c. &c. Now most of these things will not only bear but enjoy more heat than the hard-wooded tribes in general, and, so far, things will better agree.

We must here stay to deprecate the wrath of our worthy coadjutor, Mr. Beaton, on whose manor we have been poaching for a moment; and, having the fear of his syringe before our eyes, we will get us away to our vines speedily, hoping that he will throw light on his subjects beneath the vines, for we fear the vine laterals will much shade them. Indeed, this is one of the leading points in in-door vine culture, where plants *must* be retained beneath the vines: a leading point, we say, to know at all times how much of the lateral growth may be displaced or held in check, for the sake of the plants, without injuring the permanency of the vine. We think, therefore, that it will be well to talk this part of the subject over before proceeding further. We are particularly anxious that our readers, especially the amateurs, who in the main are a shrewd and reasoning class, and delight in reasons more than mere dry rules, should be thoroughly grounded in the very first principles which lie at the bottom of all important horticultural processes; we shall, therefore, at all times, make it our duty to give the rationale of all matters which we deem of first-rate import.

VINE STOPPING is one of these matters of importance. It will be obvious to every one that, unless some process of this kind is resorted to, the shoots of the vine in-doors would speedily become confused, and that most of the larger leaves would be shaded by spray of inferior growth. Such, beneath the murky skies of Britain, would not answer; beneath the glowing and, I may add, at times, burning atmosphere of the East, and beneath such a vast increase of atmospheric heat, there is little doubt that a slight screen of laterals thrown over the larger leaves is, at times, exceedingly beneficial, and intended specially by nature for that very purpose. The bountiful hand of God is manifest in this very matter, for this plant of all ages and many climes is so constituted that, pruned or unpruned, it may become subservient to the wants of man under the varying conditions to which it may be subjected.

The principal leaves, in our dull clime, require the

full action of sun-light, in order to elaborate completely those juices on which the flavour and size of the fruit, as well as vigorous constitution of the tree, depend. To throw some light on this portion of the subject, and by way of illustration, we may here direct attention to the fact that a course of *very close* stopping, persisted in from the first, with young vines, would for years prevent their attaining that bulk of stem which is necessary in order to carry full crops every year for many years in succession. Indeed, by carrying it to a great extreme the vital powers of the vine would, doubtless, be seriously injured.

We have observed thus far in order to shew that a medium must be observed in stopping processes; and we proceed now to shew that the vine, like most other trees, moves by periodical fits—if I may be allowed the term—even in its annual course, and that the stopping must be made to bear a direct relation to such habits. These peculiar periods on which, as we have before observed, the amount as well as the stopping necessary must be brought to bear, are—

1st. The development of the bunch.

2nd. The first swelling of the berry.

3rd. The last swelling of the berry.

We will now briefly explain each of them; it will be matter for future COTTAGE GARDENERS, as springs return, to enter still further into this interesting subject, which is not to be entirely settled in a page or two.

1ST PERIOD: DEVELOPMENT OF THE BUNCH.—In order to concentrate as much as may be the energies of the vine in the neighbourhood of the tiny young bunch, and to give the latter those broad shoulders and other appurtenances deemed so necessary, stopping is had recourse to; not the same in character, however, as the subsequent ones; this is a stopping of the very first efforts of the vine to fulfil the destinies assigned to it, but which man thus modifies to his own peculiar aims, a modification of which it was made susceptible from the beginning. This consists in merely pinching off the point of the growing shoot one joint above the "show," which "show," in other words, is the joint from which the fruit proceeds. The reason why one joint is selected is this—it is found by experience that, in a roof covered with vines in Britain, every allowable means must be taken at all times to check the tendency of one shoot to overlap another. Light is the prime object after all; and it must be borne in mind by our young and rising horticulturists, that if the stopping took place two or three joints beyond the "show" there would be no harm, but probably good, all other circumstances bearing a just relation to the proceeding.

2ND PERIOD: THE FIRST SWELLING OF THE BERRY.—After the young points have been pinched, or, in gardening language, "stopped," in a very few days each joint below the stopping will put forth a side shoot, these are termed "*lateral*" or "*acillary*" shoots. We here stay to request our readers, once for all, in the most emphatic way, to reconcile themselves to the technical terms existing amongst gardeners, and to endeavour henceforth to charge their memory with them. This will save the writers of THE COTTAGE GARDENER—not endless trouble, for being exceedingly busy is nothing new to them—but it will save the readers a host of repetitions, the place of which may easily be supplied with sound information. This digression has been forced upon us

by the earnest desire to avoid repetitions, and to make our labours truly useful.

Well, then, "lateral" or "axillary" shoots, what is to be done with them? they are nature's own effort. And what did nature design them for? Why, to extend the fabric of the tree right and left, either on the banks of the Rhine or in wild woodland scenery, where they grow in perfect freedom, and festoon themselves in every direction. This cannot be permitted in a British greenhouse, and we must, therefore, see whether nature *insists* that every lateral must be preserved, or whether she has endowed the vine with capabilities of yielding to artistic modifications, to please her "masterpiece called man." The latter is happily the case, as proved by every day practice for centuries, and the fact is as convenient as it is surprising. It is, therefore, found the best policy to continue stopping these laterals or axillary shoots very frequently whilst the *first swelling* of the berry is proceeding; the frequency of the stopping being determined chiefly by the aggression which occurs in the act of these laterals rambling so far as to overshadow the first made or larger leaves.

The result of this close stopping certainly is to limit the extension of the tree according to its innate powers; such, however, is amply compensated for by increased size in the berry, the powers available being concentrated more in the immediate neighbourhood of the bunch. This stopping, therefore, is repeated as often as necessity calls for its repetition, until the first swelling is completed, when what is termed the "*stopping*" period commences. During this crisis (which in general lasts some six or eight weeks) the berries appear stationary; nature seems to be engaged in forming and organising the vital principle in the seed, the perfecting of which is one of the great ends of the existence of the vine. The close stopping during the 2nd period having accomplished all it was intended to do, may now, for awhile, cease, at least in part, and as much spray suffered to ramble freely as space can be found for. This course will excite, indeed create, an extra volume of root, which will be of immense service both in the current season and for strengthening the tree for future progression. The leading shoot, above all others, may now be encouraged to ramble freely in any direction open to it; this it is, indeed, which holds by far the most powerful reciprocity with the root. We say not that stopping of all kinds must absolutely cease during this period; still, in free-growing vines, some amount will be necessary; it must, however, be *stopping of necessity*; some of the shoots will begin to cross each other's track, and such must be made to give way by a timely stopping.

3RD PERIOD: THE LAST SWELLING OF THE BERRY.

—Now again commences another and distinct crisis in the vine: nature having formed abundance of perfectly developed organs for a thorough elaboration of those juices which, as before observed, must give flavour to the fruit and solidification to the fabric of the tree; having thereby also brought an increase of new roots into play, and having thoroughly organised the seeds in the berry, the rest of the matter becomes what we may term appropriation of the juices. The fruit acquires flavour and the buds plumpness and firmness; for whilst the fruit is perfecting, another year's stock, at present in embryo, are being organised and folded safely up in their winter's coats, in the simple-looking buds which may be found in the axil of every leaf, and which may be counted on, and dealt with, as seeds

laid up in their winter's store. The whole business of the tree now becomes elaboration, which, in plain language, signifies a chemical transformation of their fluids, to be appropriated by the fruit and the buds. Light—abundance of solar light—with a complete circulation of air, and a comparative dryness of atmosphere, are now the grand requisites. To obtain the greatest amount of light on the *principal leaves* is henceforth the object of the cultivator; and to accomplish this he must strip away all those laterals which shade in any degree the larger leaves. This done, finger and thumb work ceases; the cultivator has done all that was required of him.

Before we conclude let us endeavour to impress one idea strongly on the minds of our embryo gardeners:—Do not strip away leaves or spray in order to throw sun-light on the fruit. This is a very common error: the fruit receives its colour through the agencies of the leaves, and not in spite of them. Sun-light is by no means indispensable to their colouring, nay, it is prejudicial unless when they are becoming perfectly ripened, then their cuticle (skin) is able to bear it, and leaves are sometimes plucked away from any late grapes, in order to facilitate the dispersion of damps leading to mouldiness.

These remarks contain, we conceive, the whole rationale of the process of stopping, according to our notions and practice. Doctors differ, so do gardeners, and it is possible that, like other mortals, we may hold erroneous views in some respects; such we cannot hope to escape entirely, but we believe that the foregoing account of stopping will be found in the main to embody the very best practice extant.

With regard to the rearing of young vines for the first two or three years, some deviation from the above practice is necessary; we must, however, defer that, having much to say on the subject.

As vinery advice peculiar to the season, we say, *do not coddle your vines*; ventilate freely at all times, taking care that back air is given liberally before seven o'clock in the morning. Those who want to get them forward as soon as possible may close their houses soon after four o'clock P.M., with a solar heat of 95°.

If the borders are indeed well drained, and the soil, as it ought to be, porous, liquid manure should be given in all dry weather, especially during the end of the first swelling, and through the entire part of the stouping process. Half-rotten manure, mixed with old leaves, may be laid on the border four inches thick, and the liquid manure sprinkled on these when very hot with sunshine. It is well also to apply the liquid heated to 90°. R. ERRINGTON.

THE FLOWER-GARDEN.

WEeping TREES.—A more proper name for trees of this description would be drooping, for they are trees the branches of which, instead of growing in the more general way upwards, send their slender shoots downwards. The weeping willow, the weeping ash, and the weeping elm, are the most familiar examples of this mode of growth. In order to have handsome trees of this description, it is necessary to graft or bud the weeping variety on tall upright species of the same genus. Choose such as have clean straight stems; prune off all the small branches to the desired height, and if there are three branches near the top leave them on, to receive, at the proper season, a graft on each. The tree will then sooner

make a good head of weeping branches, and be equally balanced on each side.

As it is now a good season for budding, if any of our readers have such handsome upright-growing willows, ashes, elms, beeches, and laburnums, as will make good stocks for drooping varieties, let them be budded forthwith, in the same manner as is described in a former page for roses. Should these buds succeed, you will have gained a season, or, at least, have secured a growth early in the following spring. Should part of the buds fail, the stocks will be in good condition to graft in the March or April following. These stocks should not be worked—that is, grafted or budded—till they have attained the height of eight feet, or thereabout. There is no objection to ten or twelve feet in height, but rather an advantage, especially in such strong and rapid growers as the weeping ash and elm. By having straight stems of such altitude the trees will form a natural shady harbour, under which, when the weather is hot, chairs or rustic seats might be placed.

For such weeping shrubs as the several kinds of cyprus, and roses that have pendant habits, stocks of lesser heights would be more desirable, and for this reason, that as they are grown chiefly for their flowers, those ought not to be too much elevated. From five to six feet will be quite high enough.

USES OF WEEPING TREES AND SHRUBS.—We have already alluded to one use to which trees and shrubs of this description may be applied—that of forming a leafy bower, as shelter from the burning heat of the sun in summer. They are also sufficiently ornamental to be very desirable. What is more elegant and graceful than a drooping tree, a willow or a birch especially? What more beautiful than the pendant rose, its branches clothed with flowers of every hue? Then the pretty cyprus, either with purple or white flowers, is very ornamental in front of the shrubbery, in the middle of a bed of flowers, or planted on the lawn. As ornaments, then, in garden scenery, they are of use and very desirable. Some of them, and more especially the weeping willow, are very beautiful if planted near the edge of a piece of water. There they are quite in character, and the more so from the pleasing shadow they cast upon the water. Another use is a more important one, and that is to plant them near to the graves of those who are "gone before." Here the term "weeping" is more appropriate. No other kind of tree, except, perhaps, the cypress, is so well adapted as a memorial of departed friends. The faithful servants of Napoleon shewed their attachment to their master by surrounding his tomb at St. Helena with the weeping willow; and when they left the island they brought slips of those trees, and planted them in their gardens in "la belle France," as remembrancers of him who, whatever his faults as a commander of armies or ruler of nations, had been to them, his domestic servants, the best of masters.

The most extraordinary weeping tree we ever noticed is in the grounds of the Earl of Harrington, at Elvaston Castle, near Derby. A common ash (*Fraxinus excelsior*) of some fifty or sixty feet high, with a clean straight stem, had, three years ago, all its side branches pruned off to nearly the top of the tree. Upon the highest shoots some grafts of the weeping variety were inserted. They succeeded, and when we had the privilege of seeing that unique place they had made considerable progress downwards, with every prospect of doing well. In the course of a few years this tree will be one of the many wonders of that wonderful plan. We believe there are some

similar examples to be seen at Chatsworth, the princely mansion of the Duke of Devonshire. These examples shew what may be accomplished by art; but, some of our readers may exclaim, what is the use of such things in amateur and cottage gardening? why cite such grand places as examples? We can only reply to such questions by quoting an old proverb: "what man has done man can do." A young ash or elm, or common willow, may be growing in the shrubbery of an amateur, or the hedge-row of a cottager's garden; and, though of themselves not uninteresting objects, they may be rendered much more so by grafting weeping varieties upon them. Thus the wonders of the grafting art may be shown in many an obscure nook throughout the land. We shall conclude this essay on weeping trees by giving a list of them, and trust such a list will be useful to some of our readers who may be desirous to cultivate these interesting trees and shrubs.

Cerasus Juliana pendula (Weeping Cherry).
Cytisus purpureus (Purple Cytisus).
 var. *albus* (White Cytisus).
Betula pendula (Weeping Birch).
Eagus sylvatica var. *pendula* (Weeping Beech).
Ilex aquifolium var. *pendula* (Common Weeping Holly).
Larix pendula (Weeping Black Larch).
Salix Babylonica (Babylonian Weeping Willow).
Ulmus fulva pendula (Weeping Elm).

WEEPING ROSES.—These are such beautiful objects, so easily attainable, and so capable of being grown in every garden, whether large or small, that we are inclined to dwell a little longer on them. Every lover of flowers that has seen a thriving, healthy, weeping rose, with its long pendulous shoots covered with their lovely tinted blossoms, will agree that they are most beautiful objects; and we advise those who have not seen them, to visit some rose garden where they are cultivated, for we are quite sure they will be highly delighted. To obtain them for the gardens of the amateur or cottager there are two ways: first, by purchasing them at some nursery; but, as the summer season is not the proper one to remove roses, pay a visit to some rose nursery, and mark such as you may admire, to be removed at the proper season to the garden of the purchaser. Secondly, if you do not choose to purchase, and have some tall briars fit for budding, procure some buds of the right kind, and insert them into those stocks. Now is the very best time for that operation. If you have no stocks, but possess some standard roses, put some buds of weeping roses into as many of them as you may think desirable. If the buds should take, or grow, reduce the other branches gradually, and in the spring allow none to grow but the desired kind. In this way you may have, in a short time, some beautiful specimens of weeping roses. But, say you, how shall we know what kinds will grow in that manner? We are happy to give you that information, for the following are their names:

Ayrshire Queen, dark purplish crimson, large, and semi-double.
 Queen of the Belgians, creamy white, small, and double.
 Ruga, pale flesh, large, and double.
 Splendens, white, edged with red, semi-double.
 Banksiethora, white, centre pale yellow, small, and double.
 Carnea-grandiflora, pale flesh, large, and double.
 Myrtilanthus Benoniensis, bluish, edged with red, small, and double.
 Rampanthe, pure white, double.
 Spectabile, rosy lilac, large, and double.

To cause the weeping roses to form regular, well-flowered heads, the following hints must be attended to. Either have a trellis for them, formed of wire in an umbrella shape, of such a diameter as the kind of rose may require, or stretch some strong small cord from the centre of the rose-tree down to

the ground, and fasten it there by strong hooked pegs. To this trellis of wire or cord tie the downward long shoots, thinning away the weaker ones. In the autumn cut off only the very extremity of the preserved shoots, which will flower their whole length, giving to the tree the appearance of a half-globe, and literally one mass of flowers. But our sheet of paper informs us we must close this pleasant subject, or we shall be obliged to leave short another of our no less delightful tasks—the consideration of

FLORISTS' FLOWERS.

The plants of this description that require peculiar care now are the carnation, picotee, and pink.

The PINK will be now opening its flowers. To prevent them opening irregularly—that is, in technical phrase, *bursting*, or opening on one side more than the other—let each pod be encircled either with a ring of bass mat, or with, what is better, a ring of Indian-rubber, and with a pair of small scissors open the green cup or calyx on the opposite side to that where it is appearing to burst too much. This will allow the petals of the flower to spread open regularly, so as to form perfectly round flowers—a form indispensable where perfection is desired. The same method must be followed with the carnation. The picotee very seldom requires it, and for this reason, that the petals of the latter flower are shorter, and fewer in number, and so are very rarely seen to open on one side more than another.

CARNATIONS AND PICOTÉES will benefit at this season by being watered once a week in dry weather with liquid manure of very moderate strength.

LAYERING CARNATIONS AND PICOTÉES.—The young shoots will be now long enough to layer. We think this the safest and surest way of propagating these highly prized flowers. Where, however, they produce more shoots than can possibly be layered, take them off, and pipe them in the same manner as described previously for the pink. Having removed them, you will have more room to operate upon the remainder. Trim off the lower leaves with a sharp knife, without injuring the bark; leave about three pair of leaves, and just below the third pair make an incision or slit with the knife, about midway between two joints. Place a thin piece of wood in the incision or slit to keep it open, peg the shoot down carefully, and so proceed till every layer is done round the plant. Then cover them with some light rich soil; and go on from plant to plant till your whole stock is layered. The best kind of pegs are made of the fronds (branches) of the common brake or fern. Water the layers occasionally, and they will nearly all root, and make fine plants by the end of August.

T. APPLEY.

GREENHOUSE AND WINDOW GARDENING.

HYBRIDIZING.—I have said that the stamens, or male organs, in a flower, are analogous to the floral leaves or petals, double flowers being occasioned by the conversion of the stamens into petals; and hence I have inferred that the petals are perfectly useless, either as far as the impregnation of the ovule or the future development of the seed is concerned. I also said that the petals might be cut off whenever they interfered with the operation of dusting the pollen, as they often do in tube-shaped flowers, when the pistils are hid from view, such as the verberna, the florist's polyanthus, and in many other flowers of

various forms.* But I will explain this more in detail, as some expert hybridizers, whom I could name, seem not to be aware of this fact. We have the evidence of our senses that stamens are converted into petals—no one doubts that, who has the least knowledge on the subject; the petals must, consequently, partake more or less of the nature of stamens, for the change has not altered their nature, only their outward form; and we all know, by this time, that the office of the stamens is simply to uphold the anthers or pollen bags on their summits, and when the pollen is ripe and dispersed the office of the stamens is at an end. We also know that flowers selected for crossing must be deprived of their stamens, to get rid of the pollen, before either it or the stigma is ripe. Therefore, seeing that this does not affect the operation of the pistils when touched by pollen from another flower, why not get rid of the petals as well as the stamens, if they are in your way when you are crossing the flower, seeing they are exactly of the same nature? If you hold still to the belief that the petals are endowed with the property of supplying nutrition, or are in any other way essential to give power or effect either to the pollen or young seeds, I must refer you to the great Decandolle, who is the first authority in botany and vegetable physiology, and who has clearly explained all this in his "Vegetable Organography," translated into English, a few years since, by Boughton Kingdon, Esq., who was so kind as to present me with the work, although we are perfect strangers, and who, if his eye should ever glance over this page, will be glad to learn that his labours have been of great use to me. Between 1829 and 1836 I obtained perfect seeds from between 90 and 100 kinds of plants, after first depriving them of their petals for the purpose of experiment; and, in 1837, I said in the *Gardener's Magazine*, that the presence of the petals is not necessary for the purposes of cross-breeding; and, after all this, the future historian of our gardening, in the middle of the nineteenth century, will have occasion to place these three significant marks !!! after telling his readers that, in a standard work on flowers, published in London in 1848, very minute rules are laid down to avoid damaging the petals of a flower in the act of hybridizing it, as if that could make any difference to the issue of the experiment. I shall not mention either the book or the writer farther than to say that both are of the first respectability, and the latter deservedly accounted the most successful of our hybridizers. But we are all of us in our infancy in this department, for it is only about 70 years since the first experiments, to ascertain the possibility of obtaining crosses in the vegetable kingdom, were instituted in Germany by Kolreuter, who, therefore, is the father of this branch of our craft. In England, these experiments were followed out, at a much later date, by the late Mr. Knight, of Downton Castle, then President of the London Horticultural Society, and chiefly with the view of improving our fruits and vegetables; and, about the same time, by the Hon. and Rev. Dr. Herbert, late Dean of Manchester, who took a wider range, and experimented on many of our popular flowers, and more particularly on bulbs, with which he was more conversant than any other botanist. The late Mr. Sweet, a clever practical botanist and cultivator, much about the same period, was engaged in similar

* At first sight this may appear to be opposed to the opinions expressed at p. 125, but it is not so, for the writer of the "Phænomena of the Season" quite agrees with Mr. Banton, that the petals may be removed without injury to fertility *after* they have expanded, or "after the stamens, &c., are fully grown." In the Gum cistus they do so naturally.—Ed. C. G.

experiments, detached notices of which appeared in several works on which he was engaged. In one of these works, on the *Geranium*, he gives some very interesting details of how our window geraniums began first to be obtained, by crossing some of the wild species from the Cape. I spent a whole day, last summer, looking through this work in the library of the Horticultural Society; and to compare, in one's mind, the noble specimens of geraniums that were exhibited that week with the little weeds from which they originated, was, indeed, a most singular contrast.

Thirty years of patient industry were expended before a geranium was obtained that would be now thought good enough to plant out in a common shrubbery. Many now regret that the breed or present race of geraniums is not more varied into sections, as they might have been, had the best colours of the original parents been followed out, each in its own strain, instead of pushing on with only a few which yielded more readily to the impatient hybridizer, as has been done, more recently, in the case of the calceolarias. The older florists, however, had more reason to be content with what they could get, as few families that have been experimented on in this way are so obstinate as the geraniums to part with their wild characters. I know of only one other instance, the *Lobelia*, where the offspring of species almost identical in character and aspect becomes absolutely sterile at the first or second generation, like some of those of the wild geraniums.

In 1837, Dr. Herbert published a large work, with coloured plates, on an extensive division of bulbs allied to the *Amaryllis*, to which he appended a full description of his own experiments in hybridizing for 30 years, as well as a history of what others had effected in the same field, both here and on the continent. This may be said to be the first popular account of cross-breeding, in the vegetable world, which appeared in any language, and it gave a powerful impetus to the art in both hemispheres. Before the appearance of this work, the crudest absurdities were in circulation about cross-breeding. We have all of us since mended our ways, but many weeds spring up yet here and there. In 1847, Dr. Herbert wrote two long papers on the same subject, in the *Journal of the Horticultural Society*, full of the philosophy of hybridizing, and containing many startling facts; in short, after the investigations of 40 years, he has here summed up the result of his own views on the subject, founded on the facts he and others had brought to light by cross-breeding. He finally arrives at this conclusion, "Can we, in the face of these phenomena, assert that no vegetable since the period before the sun and moon gave it light, no bird or fish since the Almighty called them forth from the salt mud, no creature of the earth since it was evoked from the dust, can have departed from its precise original structure and appearance? Let us be more humble in our assumptions of scientific knowledge, less bigoted and self-sufficient in our examination of revealed truth, and let us give glory to the infinite and unfathomable power and wisdom of God. I call it self-sufficient to hold that ancient and obscure words can have no possible meaning but that which we have been in the habit of attributing to them inconsiderately. It may be unacceptable to the botanist, who has been accustomed to labour in his closet over dry specimens, and think he can lay down precise rules for the separation of genera, and look with complacency upon the scheme he has worked out, to find that the humblest gardener may be able to refute him,

and force him to reconsider the arrangement he has made; but the fact is so. The cultivator has the test of truth within his scope; and, far from being an evil, I look upon it as a great advantage, because it will lead the industrious and intelligent gardener to take a higher view of the objects under his care, and to feel his own connexion with science; and it will force the scientific to rely less on their own dictation, and to feel that they must be governed by natural facts, and not by their own preference."

Without "facts," we may pursue and detail our investigations of the mystery of cross-breeding to little purpose; there is no safety without actual facts, for there is no room yet for much useful theorising. To facts, therefore, let us return, and see how the *Gladioli* are best crossed. They are, of all plants, the easiest to cross, and the result of the operation is soon known. It is now just 42 years, this summer, since the first gladiolus was crossed in England; and if it was crossed elsewhere before that time, we have no record of it. Therefore, all that is now known respecting the breeding qualities of this family was ascertained by a few individuals as far back as 20 or 30 years since. There is one point, however, which seems to be of much importance, that has lately been mooted in private circles respecting this family, viz., that the higher it is cultivated the more certain it is to produce extra fine hybrids. Although I am quite at home with this family, I cannot say if this is a real fact or not, but I believe in it. Like all other plants that are to be crossed, the gladiolus must have the anthers cut out before they open to relieve the pollen. Suppose we have only two sorts, however, and that we wish to obtain seeds from both, each by the pollen of the other. Now, this was a puzzle in my early crossing days, but it is plain enough now. It has been ascertained that pollen which was dried with a flower on a specimen, and kept in a book or herbarium for a number of years, was capable of undergoing a similar process to that of fertilizing a stigma, when placed in water or otherwise damped; but it was not ascertained if such pollen could fertilize seed or not. This account was published in 1829,* and, from that day to this, I have every season reserved unripe pollen for days, weeks, and even months; and I have some by me now six years old. I have found that pollen will ripen though taken from a flower at an early age, say some days before the anthers would open naturally; and all that is necessary for its preservation is an absolute exemption from damp, and not to be dried quickly if extracted before it is ripe. I believe there is no pollen but will keep a month or two, and that is quite enough for ordinary crossing. The best way to keep it is to fold it in silver paper, and to enclose this in coarse brown paper, the packets to be kept in a drawer in a dry room.

Well, then, you see that with only two gladioli you may easily get a cross from each, unless you are extravagant enough to throw away the pollen; however, as the flowers of a gladiolus do not open all at once, there is no need of preserving the pollen at all; but I am anxious not to leave a stone unturned that would throw any light on the subject in hand. There is only one style in the centre of a gladiolus, and that divides into three parts, or stigmas, at the top, and is the part to dust the pollen on. When the parts are ready for the pollen, these stigmas open into two halves, or are dilated, as botanists say, and the edges of these little openings are the real stigmas. The anthers which bear the pollen are always in

* Magazine of Natural History, vol. i., page 1.

threes in this flower; each flower invariably having only three stamens, which hold up the anthers. When the pollen is ripe, the anthers burst from top to bottom, and there is a furrow down the centre of each opening, so that the anthers are each in two parts. The easiest way of applying this pollen to the stigma is to cut off the flower whose pollen you are to use, then with a penknife cut off first the petals down as far as they are split, then you will only have the tube of the flower to which the bottom of the stamens are attached; then, with the point of the knife, single out one of the stamens with a ripe anther, keeping hold of it between the knife and your thumb, and in that position apply the anther backwards and forwards on the stigma, when you will see the dusty pollen adhering each time to the stigmas, and then the work is done. It is always a good plan, however, to apply the pollen twice, say in the morning and afternoon; or, after the interval of a day or two, with some flowers whose stigmas remain fresh for several days. Where a cross is difficult to be obtained, it is a good plan to use pollen from two or three flowers, and from as many plants, if they are at hand; but the pollen plants must always be of the same kind, as no flower will yield to the influence of two kinds of pollen at the same time. If it did so breed from two kinds, the process would be called *superfecundation*, a monstrous doctrine, so repugnant to nature that few of the more learned physiologists countenance it now, though some of them leaned that way till the labours of the cross-breeders proved how untenable it was; of course, different kinds of pollen may be used for the different flowers on a given plant, and the same kind of pollen may be used with advantage from two or three flowers of the same kind, but from different plants; thus giving two or more chances against failure, as the pollen may be deficient in one plant from various causes: it may be too ripe, or not ripe enough, and wet or too much dampness may have access to it, which would cause the pollen grains to burst and so prevent its full action. We may exemplify in the gladiolus a very mysterious point, which was but very recently cleared up, and that by the late Dr. Herbert. I have already said that the one style of the gladiolus is divided on the top into three stigmas; the seed vessel is also divided into three divisions, each of them holding several winged seeds. Now, for a long time, it was believed that each division of the stigma impregnated only the seeds in the corresponding division of the seed vessel, and that if the other two divisions of the stigma were cut out or left without pollen, their share of the seeds could not be fertilized. But it is not so; one of the three divisions is equal to the task of conveying the pollen to all parts of the seed vessel, which is fatal to the theory of the pollen being conveyed in long tubes spun out of its own substance. It occurred to me, some years since, that if three kinds of pollen were applied to the three divisions of the stigma—seeing that each of them were capable of fertilizing all the seeds—that if there was any truth in the theory of *superfecundation*, this would be the most likely way of proving it, and I suggested the experiment in 1837. After a great number of experiments, Dr Herbert was enabled to answer the question in the negative ten years subsequently. Another feature will meet the young beginner in the gladiolus, perhaps, for the first time. There is no trace of a calyx or outer covering in any of them, nor, indeed, in any of the lily-like flowers. Their corolla is mostly divided into six parts, and three of these are the true petals; the other three representing the calyx in a petal-like form.

But the most curious of all is the fact disclosed in the stamens of the gladiolus and of all the iris tribe, of which this forms a part. You are aware this name gladiolus is taken from *gladius*, a sword, on account of their leaves being shaped like a two-edged sword. They are, therefore, gladiators or swordsmen, if there is anything "in a name." The stamens, being the male organs, are the knights of the order, and military knights are proverbial for gallantry; but there is no rule without an exception, and here is a marked exception, both in a military and botanical point of view; for in the whole order of irids, gay and beautiful as they are, the knights invariably turn their backs on the ladies. So if ever you meet with a lily-like flower, with three stamens only, and the anthers holding the opening for the pollen opposite to the style and stigma, you may depend on it the stranger belongs to the iris tribe, of which the gladiolus is one family.

D. BEATON.

THE KITCHEN-GARDEN.

BORECOLE, and also all the other varieties of the *kale* family, should now be planted out in full crops, as well as the *drum-headed cabbage* and *savoy*. All these are most profitable and wholesome vegetables for the cottager; and the refuse, if boiled in the pot liquor, will not only provide the pig with hearty food but lessen the mealman's account at the same time. Those who have no ground to spare may plant the above-named crops between the rows of peas, beans, and early potatoes, where they will grow and become well established by the time that these last are cleared away; and as soon as they are removed, the ground must be well forked and scarified, and liberal soakings of liquid manure applied to the different crops of kales and cabbages. The small kinds of *cabbage* should be pretty liberally planted, and successions sown. Those who have plenty of ground to spare may still sow *peas*, *beans*, *scarlet kidney beans*, and *scarlet runners* for autumn use, always bearing in mind that those already planted may be made doubly productive by the application of liquid manure and the constant use of the hoe.

ROUTINE WORK.—*Celery* and *leeks* should now be planted in succession, and attended to as described above for other crops. *Early potatoes*, *onions*, and *shalots* may be harvested, and the ground forked up into ridges ready for the planting of *cape* and other sorts of *broccoli*, *cauliflowers*, *cabbage*, *endive*, *lettuce*, a few *radishes*, another sowing of *parsley*, a few *onions* for pulling young in autumn, and some more *celery*, as well as all *winter kales*. *Cucumbers* on the ridge should be duly mulched, stopped, trained, and assisted by manure water, and the same remarks also apply to those in frames or pits, as well as to *melons*. Another sowing of each may be made. *Peas*, *beans*, *kidney beans*, *scarlet runners*, *cauliflowers*, and many other garden crops, may, at this season of the year, if hot dry weather prevails, be greatly assisted by slight mulchings with any kind of refuse matter, which is beneficial by preventing evaporation, and consequently keeping the soil about the roots moist.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

ALLOTMENT GARDENING FOR JULY.

WE have now arrived at that part of the summer when, in the productiveness of many of his garden

or allotment crops, the cottager will entirely forget the troubles of a previous winter and a tardy spring. He will now, we hope, be enjoying the fruits of perseverance, in the shape of good new potatoes, early cabbages, Horn carrots, turnips, lettuces, &c., &c., whereby not only will the thrifty housewife be amply supplied, but the pigs and cow, if any, will be partaking of similar benefits; for, where the cottager's wife is enabled to work up abundance of vegetables in-doors, there is sure to be plenty of scraps for the pigs; and all this has a salutary influence on the size of the midden, or dunghill, in the ensuing year.

FORECASTING.—Under a mixed system of cropping, which we in part recommend to our allotment holders, one of the most important matters at this *precise* period is to anticipate, with a searching eye, the decay of *mere* summer crops; and, by studying the habit of growth of the crops, the duration, together with the method of gathering or housing, to introduce, as far as possible, vegetables for a long winter between or among those summer crops. The method of gathering must be taken fully into consideration, for where rows of things stand already somewhat close, say peas, and much tramping in the gathering is sure to ensue, it is sometimes better policy to suffer the whole crop to be removed before planting a succession of any kind. This points at once to the expediency of having much forecast in the early spring; for all these things, by careful consideration, may be anticipated. We hope, therefore, that our allotment friends will not hereafter complain so much of the tediousness of winter, but in their "ingle nook" ruminate over them; for, assuredly, to digest a scheme of cropping, embracing all possible capabilities, will occupy many a leisure hour, both profitably and, to our taste, agreeably. For the above reasons, we have at times, probably, advised greater distances between crops than might, to some persons, seem compatible with the cottier's limited space; it must be remembered, however, that there is a point at which close cropping must stop, and to go beyond which is certain loss, whether in the garden or in the farm. However, these things are capable of great improvement, and we are assured that immense progress will be shown in this matter during the next year or two, and that the discussion of the subject in *THE COTTAGE GARDENER* will be productive of some service, if only in setting other minds at work.

HOING.—As foremost business of the season, we may commence with hoe culture, whether for cleaning land or for its mechanical effects on the soil. With regard to the latter, not only is the soil pulverized and made of easy access to the tender fibres of vegetables, but organic matters, manures, &c., are more intimately blended with the soil, and brought within the reach of atmospheric agencies. Thus, more food, besides a greater liberty to range in quest of it, proceeds from plenty of deep hoe culture. When we say *deep*, however, we must add a caution:—due attention should at all times be paid to the character of the roots or fibres which feed the plant. Thus, with regard to the carrot, where land is in good condition, or containing some manure near the surface, the carrot is apt to branch into forks and become rough. Now, we consider it beneficial to hoe deep pretty close to the *carrot* in its earlier stages, being persuaded that the tendency to become forked is in some degree checked by such hoeing: many of the fibres having a bias that way become destroyed in the operation. With respect to the potato, however, the case is different: every possible means should be taken to encourage surface fibres; such the *potato*

will produce, like a net-work, close to the surface of the soil; and, notwithstanding that much fuss has been made about hoeing through them, we are persuaded that many crops are much injured this way, not by hoeing merely, but by hoeing too close to the main stems. We care not, however, how much hoeing is performed in the earlier stages between the drills. Such is exceedingly beneficial, and cannot be too much practised. Therefore, we advise the cottager, at all times, to examine the character and present condition of the plants, and to apply the hoe accordingly.

WATERING.—This necessary operation must occasionally be had recourse to, chiefly, however, to get newly planted crops established. We do not hold with watering either *peas* or *beans*; we never found it answer; neither will the cottager find time for such extended operations. *Onions*, too, how seldom is watering them satisfactory! unless it be resorted to for the purpose of introducing some stimulating manure, as guano, when the soil is very poor. Where watering will be truly beneficial, under the allotment system, is in the germination or sprouting of *seeds*, a matter about which we take to ourselves some blame for not offering advice concerning this delicate process sooner. In the transplanting of *lettuces*, *cabbages*, &c., too, the process becomes highly necessary, as not unfrequently three weeks are lost in the prime of summer through neglect of this operation; and it is manifest that the bulk of crop which would be produced in three weeks would amply repay the small amount of labour requisite. At the moment of germination, or sprouting, many broad acres are spoiled throughout the kingdom by dust. The little white point, which constitutes, in fact, the future plant, is of the most delicate character, and not capable of existing one hour in *mere* dust. This often gives rise to the saying which is in use in the country, that "the seed would have been much safer in the bag." Much attention to these apparently trifling minutiae, therefore, is requisite; and, for our parts, during the heat of summer, we almost invariably soak our seeds for three or four hours in lukewarm water, unless the ground is thoroughly wet through recent rains; if dusty, we keep our seed in the bag, regardless of losing time, unless, indeed, the ground is *absolutely* dry—too dry to enable the seed to germinate at all—then, we say, sow, by all means, without soaking; for the seed will be ready when rain does come, and the soil, in this state, is much benefited by roller pressure.

WEEDING.—We need merely, under this head, repeat that no high culture can be carried out without a freedom from weeds, especially seedling weeds. Let the valuable old proverb never be forgotten, for it is true to the letter—"One year's seeding makes seven years' weeding."

THINKING OUT RISING CROPS.—If the course of culture and cropping we have from the commencement of our labours suggested has been duly carried out, there will, at this period, exist a surplus of vegetable refuse, which will be of immense benefit to the pigs and the cow. One of the cottager's children should be appointed to go over all standing greens or cabbages about twice a week, and collect all the loose leaves from plants which have been beheaded. It is lamentable what a valuable amount of material is lost for want of this proceeding. The pigs are greedy devourers of everything in this shape, and all tends to increase the bulk of the manure heap. Young plants of *mangold*, *Sweedes*, *parsnips*, *carrots*, &c., should now be looked over

once or twice a week, and surplus plants, and those termed "bolters," signifying running to seed, removed to the cow or the pigs. These things should be done at set times if possible. There is another old saying very applicable in this case—"What is done at any time is never done."

DISTANCES OF CROPS.—As sound thinning out will have to be done during this month, we may as well say something of the final distances of the respective crops, especially the root crops. We will suppose the soil in a state of high culture: if poor, let them all stand closer by about one-third of the distance here laid down. *Mangold* should be about ten inches apart in the row; *Suedes* about eight inches; *parsnips* about six inches; and *carrots*, the large kinds, about five inches. We speak now of the final distance, as left at the last thinning, for we would thin them out at least three times, and at each thinning there will be something for the pig or cow.

WINTER GREENS.—The month of July is, of all the year, the most eligible time to plant the chief of those greens and brocolis which must form the supply through the ensuing winter. The allotment holder at this period, therefore, should consider what may turn out most profitable, and, in doing this, he must reckon on what live stock he will possess through the ensuing winter. As a general remark, we should say that the *thousand-headed cabbage* is the first on the list, as to producing a great bulk of material from any kind of soil. Next to this we would place the *green kale*, which is notoriously hardy, and will thrive in most soils; moreover, it has the merit of being a capital vegetable for man as well as beast. The *thousand-headed cabbage*, however, will produce its sprouts earlier in the spring, being very excitable. The *Savoy* we dare not recommend, as it is too wide in the shoulders, and does not thrive well in inferior soils. In addition to these come the various *brocolis*; and we frankly confess that we should like to see the cottager enjoying his head of brocoli occasionally, if only for his Sunday's dinner, because, when boiled in the same pot with a piece of mellow bacon or pickled pork, it is, in our opinion, a dish for monarchs, that is to say, provided they could bring the hearty unpampered appetite of the brown cheeked cottager to bear upon it. As for brocolis, however, as they must for the present be classed among luxuries, we must be rather chary in our advice. It so happens that some brocolis produce a large amount of material for the pig or cow, besides the head. This is not altogether dependent on kind, but on period of planting as well. We would therefore recommend those to the cottager from which a great deal of residue in the trimming goes to his live stock. Moreover, in spring he has few dainties; we would, therefore, try to persuade him to plant a few spring brocolis directly on some tolerably open spot, and for this purpose we recommend the ordinary *late Sulphur*, *McNeill's late White*, and the *Wilcoxe*, or *Somers' particular late White*. A few of each, or all of any one sort, will do. This being accomplished, he may try to get a few plants of the *Walcheren brocoli*, a few *Cope*, and a dozen of *cauliflower* plants, and pop them in between some other crops, as a succession about the middle of July. The latter will furnish his table occasionally from September until Christmas, and the former will do the same through March, April, and May.

COLEWORTS.—We advised in June (p. 163) that a good bed of these should be sown about the middle of that month. These will be nice plants by the

middle or end of July; and we do advise the cottager to cram a few in every nook or corner that can be spared. We would not by any means suffer them to throw out crops of greater bulk and more profit, but we do recommend their being planted, at this period, on all portions in which there is not room enough for greens, brocolis, Swede turnips, &c. *Coleworts* are merely early and close hearting cabbages, sown at a peculiar season: this gives them their peculiar character. Much of their growth is made in a low temperature, in proportion to the amount of light, and hence their character of being compact, or, in other words, producing a great amount of useful food in a small compass. On good open plots, such may be planted fifteen inches between the rows, and nine inches between the plants in the row; if, however, they are put among other growing crops which shade much, a little more room must be given.

LETUCES.—During July, say about the first week, and again about the middle, it will be found good policy to sow a bed of lettuces. The soil should have a little manure incorporated with it. We recommended a suspension of the sowings during a part of May and June, on the ground that the plants run to seed if sown during that period, and during the heat of summer attain but little size. The July sowings will not be liable to these objections, and will serve to fill any blanks that may occur. We know of no crop more profitable to the cottager than the lettuce; and although for his own eating he may sow a little of the *Bath cos*, yet for pig-feeding we think that the *old Hammermith cabbage lettuce* is the most profitable, for it may be planted at only six inches square apart, and it is astonishing what an amount of pig feed they will produce at that distance, provided they are not pulled for use before going to seed—say two feet in height. It is scarcely too much to affirm that swine in general are more partial to the lettuce than to any other green food; and, when their nutritious qualities are taken into consideration, it is no wonder that pigs should thrive so fast as they do on them. We do heartily wish we could persuade cottagers in general to devote some attention to their culture, being persuaded that their merits in economising other and more expensive food is not by any means appreciated. Those who have an open plot to spare may grow them broadcast. The manure should be rotten, and need not be dug in above six inches in depth. When the plants are up they may be hoed out precisely the same as turnips; indeed, for field culture this is the very plan.

SALADS, PICKLES, &c.—We hope that some little advance has been made in these luxuries, if we may so term them. *Red cabbage* of a spring sowing may yet be planted, and even *nasturtiums* sown in a warm corner, provided the seed be soaked in warm water for six or eight hours previously to sowing. The latter makes a very useful general pickle. A row of *celery* should be planted now, if not already done, and, towards the end of the month, a bed of *radishes* and *cresses*. The *American* or *winter cress* should be chosen. This will be in cut all the winter and spring.

RUNNER KIDNEY BEANS.—Again we repeat, as soon as your runners get to the top of their stakes or lines pinch their tops off. Take care to water them liberally in dry weather—drought is fatal to their long bearing: care should also be taken to pick off all overgrown pods, unless it be a few for seed. It is surprising how a few of those lusty pods exhaust the plant.

We may now close our monthly remarks, having nearly exhausted our subject for the present as regards allotment gardening in July. In a few more weeks we shall have some fresh advice to offer. The storing of roots, and general preparation for the approaching winter, as well as for an anticipated new year's course of cropping, will begin to attract our attention. In conclusion, let us advise the cottager to bestow all the surplus labour he can on his root crops; let him resolutely keep down weeds, and apply hoe-culture, with occasional applications of liquid manure, resting assured that by following such advice he will do much to provide for a comfortable winter, and will, in the meantime, be training his children to industrious habits, and a keener perception of the bounties of our gracious Creator.

MY FLOWERS.

(No. 32.)

GAY and fragrant as our spring gardens are, they are imperfect without the rose; and now that lovely flower, in all its rich variety of scent and colour, is blooming freely. In almost every portion of the globe the rose is known, and esteemed the first of flowers. South America and Australia alone do not possess it. Brilliant and striking as the native flowers of S. America are to the traveller's eye—glittering and graceful as are the wild plants and creepers that hang in masses from the boughs in uncultivated yet exuberant richness—it seems to me that every eye must seek for the rose, and regret its absence. In the north of Europe the native rose is single, but in some of the southern lands it is frequently double. The sweetest and loveliest variety of this beautiful family, the moss rose, loses its mossy veil when removed to the South of Europe. It seems as if its delicate nature, being a native of Provence, in the south of France, needed a warm covering to suit our chilly climate: for when it returns to the genial atmosphere of its own home it throws off its beautiful dress. What a striking, what an affecting, instance is this, of the provision made by God for one of His wondrous creations! when we see even “a fading flower” regarded and protected by its Maker's hand, and its blossoms, short-lived as they are, strengthened to bear the ruder breezes of a cold, ungenial clime. What a deep, blessed lesson we learn from its eloquent lips. Need we fear to trust that gracious hand, through the changes and chances of this mortal life, when we know and see that His mercy is over all His works? Let our sweet moss roses be henceforth sweeter still, as showing forth so plainly the care of our heavenly Father, and cheering our hearts with the sweet assurance that He careth also for us. The rose seems to unite us to many distant lands: it is really a citizen of the world, and speaks to us of very interesting times and places. It blooms on the hills over which the road passes from Joppa to Jerusalem; and Burckhardt speaks of roses blooming abundantly among the ruins of Beza, thus reminding us again of many things dear to the Christian's heart. We are carried away in spirit to Him who “is glorious in His apparel, travelling in the greatness of His strength;” to His weak yet affectionate disciple, whose example should shame us into equal repentance, after equal and often repeated guilt; and to the city where David dwelt, whose position among the hills is so beautifully used to depict God's care in standing “round about His people, from henceforth even for ever.” In the little village of St. John, also, the roses grow in thick plantations, and thus blooming

in the desert where John preached to the multitudes, it may repeat to our unthinking hearts, “Repent, for the kingdom of heaven is at hand.” The beautiful crimson and white rose, which we call “York and Lancaster,” has much historical interest in our eyes. It is said that it first appeared when the rival colours of those two families were blended together by the union of Henry VII. with Elizabeth of York, after a long and wretched period of desolating war; and it has, therefore, been ever looked upon as an emblem of peace, dear to every British heart. We know nothing of the horrors of civil war, and long may this bright rose be its only symbol! It is pleasant and profitable thus to be reminded, by the flowers we love to cultivate, of some of the causes for gratitude and praise which we so abundantly enjoy; and the rose, in its glowing loveliness and exquisite fragrance, possesses a deeper interest still, being chosen to describe the perfections of the Church of Christ. Let us think of this as we inhale its odour. What ever raises our hearts and thoughts to spiritual things conveys a blessing; and the charm of a flower may be enhanced sevenfold, if it urges us to increased devotion, or shows more clearly the power and love of God. The wild rose, too, that lovely ornament of the summer lane, is beautiful in its form and colour. A spray drooping from the bush, covered with its small delicate blossoms, charms us as we pass; and though they are so short-lived, the perpetual succession during the flowering season makes them a valuable addition to the rural treasury. They are blessings, too, in store for the birds, ready for the days when fruits have passed away; and, with the berries of the thorn, they afford a long and abundant supply. We often say, “we shall have a long, severe winter, because there are so many hips and haws,” and we speak it unconcernedly; yet does not this very assertion declare the goodness of God, in preparing food for the creatures He has made? How carelessly we pass by mercies that greet us at every step!

There is little to be done now in our simple gardens except to remove weeds and keep everything neat and clean. The summer shoots are so rich and luxuriant that we sometimes seem overpowered by them! With regard to laurels, instead of clipping them, it is best, with a sharp knife, to cut back the redundant and encroaching boughs, which may be done at any season, and they never look unsightly or thin when pruned in this way. A hedge of laurel when clipped looks frightful at first, but if done with a knife it is by no means disfigured. A lady can always keep her shrubs in order in this way, and her taste will be far more ornamental than when leaving it to the shears of a labourer. Let me recommend “my sisters” to spend much of their summer days in their garden. It is delightful to leave the rooms in which we have sat so many dreary months, and reside, as it were, under the trees among our shrubs and flowers, listening to every sweet country sound, from the soft buzz of the insect to the less musical, but deeply interesting, labours of the field—each and all full “of speech and language”—and enjoying the genial warmth of a summer sun, so full of health and cheerfulness. Many ladies are fearful of sitting out of doors: they dread damps, and dews, and draughts. Let them use proper caution, but let them live as much as possible in the open air; it is in itself a medicine, and I can speak from long experience that it strengthens, and hardens, and cures. It raises the spirits, diverts the mind often from things that are not in themselves delightful, and fills

it with rational and pleasant thoughts. Let me urge every lady to try this plan, and I am certain she will find it one of increasing health and comfort. Let us only hear the voice that speaks in every leaf and flower, in every ripple and every breeze, from every bough and thicket, and then we shall learn lessons of wisdom that will be blest to us when all these beautiful things of time shall have passed away for ever.

THE BEE-KEEPER'S CALENDAR.—JUNE.

By J. H. Payne, Esq., Author of "The Bee-keeper's Guide," &c.

SWARMING has been much later this year than usual, in consequence, I imagine, of May being wet and cold, together with the stocks being generally very weak. Many persons around me (Bury St. Edmunds) have lost several of their best peopled hives by discontinuing to feed the bees, and this even as late as the 15th of May. It is very probable that second and third swarms will be coming in July, and, should it prove so, I would recommend their being united to late swarms, or three or four of them being put together.

DISTANCE BEES FLY.—I have frequently been asked, "How far do bees go in search of honey?" and, indeed, this is a question of considerable importance, for upon it, in a great measure, depends whether the position selected for them be favourable or unfavourable, and it is a matter that each apiarian may very easily ascertain for himself in the following simple manner:—Late in the season, when food becomes scarce, and upon a very fine morning, select a piece of buck wheat or heath (both of which the bees are very fond of), that is situated about three or four miles from the apiary upon which the experiment is about to be tried. Let two persons be supplied with a dredging-box filled with hair-powder, one tinted with vermillion or any other colouring matter, and the other plain; let one of them go to the field or the heath, and, at the exact time agreed upon by the parties, let each begin the operation of dusting the bees, one at the mouth of the hives and the other in the field; the tinted bees returning to the hives, and those dusted with plain powder seen in the field, will not only prove that the bees have gone the distance, but will also shew in what time the journey has been performed.

VENTILATION.—Much has been said about ventilation, and many are the inventions for effecting it, but I have not seen one that is really efficient; its advantages, both in preventing swarms and in preserving the colour of the combs, no person at all acquainted with the management of bees will deny.

The best ventilator that I have seen is this of Mr Taylor's. "The ventilator I use," says Mr. T., "consists of double tubes, both resting on a flaunch in the hole prepared for them; the outer tube is of one inch diameter and six inches long, with six half-inch holes dispersed over it; it is soon fixed down in its place by the bees, and so must remain. The inner tube is of perforated zinc, with a tin projecting top as a handle, and a cap to put on or off this as required. The bees will stop up the zinc tube when they can get at it, when it

may be turned round a little to present a new surface; when wholly stopped it may be withdrawn from its place and a clean tube substituted: this may be done without the least danger to the operator, but it should be inserted carefully to avoid crushing any bees that may have crept within the outer tube; an exit to these is afforded by the hole at the bottom. The substance with which bees glue up all crevices and attach their combs is called *propolis*, a resinous exudation from certain trees, of a fragrant smell, and removable by the aid of hot water."

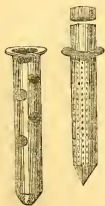
In adapting Mr. Taylor's ventilator to the small hive, or box, the inner tube must be made without "the projecting top as a handle," and the cap made even with the flaunch.

After all, however, the most certain, as well as the most simple, plan, is to lift the stories apart upon small pieces of sheet lead, especially between the stock hive and glass, box, or small hive in immediate connexion with it; the stock hive itself may also be raised half an inch from the floor board by means of blocks of wood of that thickness. This precaution is necessary only in very sultry weather, and when swarming is likely to occur. No fears need be entertained at this time of robbers, for, when honey is to be had abroad, the bees will never pilfer it from their neighbours at home. As soon as the very hot weather is over, it will be necessary to remove the blocks and restore the hives to their original position.

TAYLOR'S AMATEUR'S BEE-HIVE.—Persons who have possessed themselves of this excellent hive are by this time (middle of June) anxiously looking for swarms to put into them, or quite as anxiously watching the progress of those already at work in them. The first swarm that I heard of in this neighbourhood was on the 30th of May, and was safely lodged in one of these hives by a friend of mine, at Thetford, in Norfolk. The guide-combs being properly fixed will insure their working regularly upon the bars of the stock-box, but not quite so surely upon those of the upper one; for, notwithstanding every precaution being taken to prevent it, they will sometimes commence working their combs from the top of the stock-box, which forms the floor of the upper one. This must be attentively watched for the first three or four days after opening the communication between the boxes, and any comb observed in this position must be immediately removed.

GLASSES AND SMALL HIVES.—The proper time for opening the communication between the boxes, as well as for putting glasses or small hives upon swarms that are in the improved cottage-hive, must in some measure depend upon the season. In a good season it may be done from the 18th to the 21st day after the time of their being hived. In some seasons I have had a glass holding 10 pounds of honey-comb filled in less than a fortnight from the time of putting it on. When this happens, a box or small hive should be placed between it and the hive, as directed at p. 104, vol. ii., or, in all probability, a swarm will be thrown off; to prevent this every possible means must be taken, for the swarm coming so late in the season, as this must consequently be, is generally of no value, except to unite to others, and the stock itself is so weakened by it that it seldom lives through the following winter.

SHADING.—Should the weather prove very hot and sultry, it will be necessary to shade newly-hived swarms for a few hours in the day, say from ten till two o'clock; a green bough answers very well for



this purpose—that from a fir-tree, perhaps, is the best as well as the most durable. I have more than once seen the combs of a newly-hived swarm so heated by a July sun as to fall from the top of the hive, and the honey to run in a stream from its entrance, consequently the stocks were ruined.

THE SEASON.—Although stocks are generally very populous, there has been at present very little honey stored, and swarming is much later than usual; this appears to be general, which several letters now before us tend to confirm, among which is one from that veteran in apian knowledge, Dr. Bevan. Writing from Wales, on the 31st of May, he says, "My bees are all in full vigour and very populous, but have stored but little honey, and have not yet swarmed." And a friend, writing from London on the 4th of June, says, "In this neighbourhood bees never were so scarce, and many old bee-masters have not a single stock left." A clergyman, from Colchester, of a still later date, writes to us, saying, "During the last two years at least two-thirds of all the stock-hives in Colchester have perished; I have lost upwards of 30, and am now almost bankrupt, but as great a lover of bees as ever." *As great a lover of bees as ever!* yes, neither time nor ill success has ever in a single instance, within my knowledge, at all abated the interest excited by our little favourites in those who have entered in earnest into their management and habits. I could adduce many circumstances in addition to the one already mentioned to establish the truth of this observation; let two suffice. The venerable Dr. before mentioned is at the present moment removing from Wales, the scene of his active life, to the place, I believe, of his nativity—certainly the place of his early life (Hereford)—to end, in all probability, his days, and amongst the few things he considers worth bringing with him are HIS BEES. And, again, a very highly respected friend, who has all his life been a bee-keeper, and who has, both by his careful observation of their habits and by his valuable publications, done much for the furtherance of apian science, is now fixed in the centre of London, where the attempt to keep bees would be altogether impracticable. Still, however, the interest which he feels in their management is as much alive as ever, and is fully exemplified in his keeping a man almost constantly employed in making hives for the purpose of presenting to his apian friends in different parts of the kingdom. I can speak to this circumstance with much pleasure, for I have myself been a recipient for many years of all his inventions, many of which are far superior to anything of the kind I had ever before seen.

EXTRACTS FROM A NOTE-BOOK.

In my late remarks upon *pruning ivy*, I advisedly used the words, "cut *from* me," but omitted to say, why *from* me, which is important; for, however sharp the knife, the usual cut *off towards* you endangers dragging the ivy from its hold on the wall, which if once done, even in a small degree, there is great risk of the next high wind tearing it off piecemeal. I have seen as much as twenty yards on a screen wall brought down all at once from this cause, and only replaced by copper wire and the use of suitable nails and staples. In reference to *copper wire*, I find it the best agent for numerous purposes of *tying up*, and in none more so than binding young fruit, rose-trees, &c., to the stakes; when wanted to remain, using a substance of wire according to size of trees. It is flexible and resists all effects of the weather. I

am so partial to the use of this wire that, when thinning my grapes, I take a coil of the fittest size, and after stretching it to its utmost (after the manner of bellhangers) I cut it into various lengths, place these lengths upon a convenient board of portable construction, and after thinning a bunch, the shoulders of which require support or expansion, I take a suitable length of the wire, bend it at each end, and by hooking one end into the shoulder, and hanging the other end upon the parent branch, rather, training wires, or anything most suitable, I get through the operation of *tying up* much readier, and more to my satisfaction than by the use of bass strands, string, or anything else; and after the grapes are gathered, the wires, being preserved and sorted, will do again for years. I fancy I have some pretension to teach upon the subject, from having built a *greenhouse* in the middle of a large town, the sun not reaching it until 11 o'clock, and the vines having to run up a trellis 10 feet high before entering; and when I was told by some experienced grape growers I should not get a berry, yet out of which small house I cut, the seventh year after planting my vines, 312 bunches of good eatable grapes—and though late (for I used no firing) some of them delicious—and sent as presents to my friends in a triumph. I had only seven rafters, and the sorts were, Black Hamburgh, White and Grizzly Frontignac, and White Muscat of Alexandria; some of this latter scarcely got ripe. Whilst on the subject of *vines*, I will mention a little matter that cannot be too much known, although of no use this year. Speechley (with whom I was personally acquainted) is very diffident upon the subject of *vine bleeding*; and, even after his application of sealing-wax, bladder, searing, &c., leaves the malady without cure; whereas an amateur friend told me of a very simple remedy, which I have uniformly found efficacious, and it is this:—Take equal parts of old cheese and unslaked lime; work them well together into the consistency of putty, when, after cutting the bleeding vine at the injured place quite smooth, with a slope, so as to bring all the sap vessels equally under the operation, place a sufficient quantity of the composition upon the end of your thumb, and, by a strong pressure thereof, work as much of the compound as possible up into the sap vessels at the cut, and in a few hours I have always found the bleeding to cease.

Fumigating a viney or greenhouse I have always found best and most effectually done, when small, by the fumigating bellows. Charge the chamber of the bellows with tobacco-paper or the coarsest tobacco (leaves of your own growing and drying are cheapest and best); put a bright red hot cinder from the fire upon the top of the charge when in the house; blow gently until the fire gets hold, and then puff away as long as you can remain for the smoke; then, having a suitable aperture near the floor, puff away through the same; and half a pound of tobacco will, if well applied, completely fill the place, so as the plants therein cannot at first be seen, and every green fly will be past recovery. Of course this should be done after the sun has left, and the house shut up for the night as close as possible. If raining, the better, as many chinks in the glass will be then closed up by the water.

And as to *heating* amateur greenhouses and vine-ries, however much may have been said upon the Polmaise principle, I strongly incline to an opinion I have recently formed, of the complete efficacy of *Walker's Self-feeding Stove*. A friend of my ac-

quaintance has one of these stoves in his hall, and such is its efficiency that it warms the whole place beyond need; and I am satisfied that, as there is no noisome smell, dirt or any other objection, it will be found best of anything, for the use of amateurs, where great heat is not required, and where cleanliness and economy are considerations. Indeed, such is the smallness of cost in fuel that two might be ungrudgingly used, where one was found not sufficient. About a peck of coke will supply one for six or eight hours (according to size and draft); so that, feeding itself until the whole is consumed, two fillings, the one at three or four o'clock in the afternoon, and the other at ten, would carry the heat all well and safe through the night.

I was greatly pleased on noticing your reference, a week or two ago, to the *cottage's nosegay* of gilliflower; for such nosegay, with the addition of sothernwood or ladslove, has for many years been one of my noticeable delights of a village church congregation—being amongst the almost unvarying appendages of a respectable cottager.—Q.

POTATO CULTURE.

I HAVE been particularly desirous of learning the best mode of cultivating the potato, more especially for the benefit of the numerous holders of half-acre allotments in this parish (in which every labouring man has, for some years, had half an acre of good land at a low rent), amongst whom I have witnessed sad distress, on account of the loss of that staple article of food. I have a beautiful piece of land, about three quarters of an acre in all, of which rather more than half an acre lies in a pleasant slope to the S. and S.W., surrounded by walls to the E. and N. An excellent wholesome soil, rather light, and the subsoil limestone rock; of all the pieces of land I ever saw, the best calculated to bear good and early potatoes. I broke it up (it was an orchard) last year, and it bore, the first year, a very good crop of potatoes; though half the crop was rotten, the remainder was excellent.

Having read a'l I could get at, that seemed worth the trouble, about potatoes, I determined to try the following various plans. When the crop was dug out, I put by, in a large dry room, a few sacks of the same potatoes that grew there last year, *because I believe that it is not necessary to change the seed*, and I wished to try. These were Soden's early Oxford, an excellent and very early potato. I laid them out, their heads all one way, according to Cuthill's excellent plan, and left them, on straw, to shoot. Before planting time they had produced fine strong shoots, from three to eight inches long, very thick and strong. (I planted, in October, a few perches of these, before they began to shoot, but not on the slope—at the bottom of it, where there is a clay subsoil, much less fit for potatoes. I put them in deep to avoid the frost.) I bought a sack or two of Ash-leaved Kidneys, but not having room for them in-doors, I dug a trench as Cuthill advises, in which I laid them to shoot; and along with them I placed a few sacks of Pretty Betties, grown in the same orchard. I also sent to Fifeshire for some other early potatoes, to see whether change of seed was an advantage or not.

In the month of November I trenched the whole of the ground, 20 inches from centre to centre, as Cuthill advises, and sowed over the ridges 2 cwt. of salt and 4 bushels of soot to 15 perches. It is exactly according to Cuthill's plan, but seems to be a *very small quantity*. In the middle of January I began

planting. I took all the sets out of the room, had them laid very carefully on trays, rejecting every one that had the smallest injury to the young shoot, laid them at the bottom of the trenches, and turned the ridges over them. I did the same thing with the Betties and also with the Ash-leaves. The Scotch ones I had not taken so much care with, having no room to lay them out singly; but they were planted as above. The early Oxfords (which had been laid out in a room,) have all come up wonderfully strong, shoots as thick as my little finger, and thicker in some places. They came up very early, long before those of the same sort planted in the autumn, and were cut off three several times by the frost, (excepting a few which I was enabled to cover with straw, and where I hope to dig young potatoes in eight or ten days). But they have recovered themselves most wonderfully since I wrote to you, and are now, notwithstanding their having been cut off by frost, large and strong in the stem and leaf, looking as green and rich as ever I saw a potato in my life. They are the admiration of everybody here. The Scotch potatoes are also looking very well. They were cut off once by the frost, but have made play since wonderfully; but they are not so fine as the Oxfords (of which, you will remember, the seed was grown in the same land). I now come to the Betties and Ash-leaves. You will remember that they were laid by to shoot in a pit. They were covered with straw and earth heaped over them, to keep them from the frost. There they shot wonderfully in the winter. They were taken out in January, like the Oxfords, very carefully; but the difference between them was this: the Oxfords, *in-doors*, had been kept quite *dry*; those in the pit, though in a rocky soil, had got *damp*. This last circumstance I am sure it is which has caused them to rot. They were not *pitted* in a heap, you will understand, but laid in rows, no one potato being on any other—one potato *thick*, I mean; so no fermentation could take place, but they got damp there; and though the few that have come up are unusually strong and fine, at least 19 out of 20 rotted in the earth and never came up. This and two or three other experiments I have made, prove to me clearly that whatever be the original cause of the rot, dryness is its cure, and moisture only increases it.

May I be permitted to add that my intention in so acting with my potatoes was this: to get them all out in June, manure the ground immediately with stable or farm-yard dung, plant it with mangold-wurtzel (saved in a bed for the purpose), pull and store the mangold-wurtzel in the beginning of November, and then trench, salt and soot again, and so, without any change of seed at all, get two crops every year off the same piece of land. I did this to show the allotment holders what the land is capable of. Owing to circumstances, the late frosts, &c., I fear I shall not be able to do it this year; but I feel sure that it is, on light and well drained land like mine, easily to be done, and if I live I will try. I shall be very happy to shew you the land, &c., if ever you come this way; and, as we are close to a railway station, you may perhaps pass us some day. I must add that no other potatoes in this neighbourhood, that I know of, have failed, excepting only those which were allowed to get damp in my pit in the winter. Rev. T. E.

FLOWER STAND OR TABLE.

A description of this, which I have had in use for the last four years, may interest some of your readers. It has a pillar and claw about one foot ten

inches high, terminating in a peg which receives the slab of the table. The slab is about two feet in diameter, and has a corresponding hole in its centre, and rests on the ledge formed by the difference of size between the pillar and the peg, which latter is of the thickness of the slab, so as to be flush with its surface. A couple of small bolts which run into the pillar, and are let into the surface of the slab on each side, secure it in its place. The object of making it moveable is, that the sub-surface is flat or beveled at the edge, and, with a cloth cover, makes a pretty book table; and the other surface has a moulding round the edge, and, being turned uppermost when a flower-stand is wanted, receives a ring of wire or osier basket-work, about seven inches high, and within that a tin tray, about five inches deep, which may be turned to account in various ways: the most obvious is to hold cut flowers, and when full of rhododendrons it has a fine effect. Another simple use is to hold pots of blooming plants; and those who have tried the double potting you so often recommend will see the merit of the following contrivance. A strong lattice-work, or board full of large holes, rests on legs about one inch high at the bottom of the tin, which is filled so far with water that the surface of the board shall be quite dry—on this the pots stand; and the interstices between them all, and between them and the basket-work, being lightly filled or covered with moss, the pots and roots are kept constantly cool and damp by evaporation.

Much admiration has been excited by two other uses to which I have put my flower-table. I have made a miniature geometric garden, by placing sundry jelly pots, &c., in regular order, then filling the intervals with sand and soil, and sowing mustard-seed to produce the effect of a green ground (moss answers the purpose); each vase being then filled with cut flowers of well harmonized colours, a different mass in each, the effect is complete.

I also fill my tin with water in the summer, covering the surface with white water-lily leaves and flowers, which, if not allowed to stand in the sun, close and expand for many days in perfect beauty, making a miniature lake, which is never seen but with admiration. The tin may be filled with moss, and bulbs growing in it, in spring. Many other devices would suggest themselves to any one who possessed one of these tables, which I believe to be of a fashion of much older date than myself, or, perhaps, than any of your readers, but not the less worthy of their notice on that account.

A FLOWER LOVER FROM CHILDHOOD.

STRAWBERRIES.

The following observations, made by us in another publication, are appropriate at the present season. Round strawberry plants grown in distinct rows, it is necessary to cover the surface of the soil with straw between the rows, or with the mowings of grass, during the blooming and fruiting. This preserves moisture to the roots of the plants, and saves the fruit from being dirt-splashed. Such coverings, however, are more or less harbours for slugs and other predatory vermin, and tiles of an appropriate form have been consequently suggested as a substitute. Grass will be found to answer better than straw. It does not harbour slugs or mice so much, for, as it withers, it lies so close and compactly on the ground that they cannot crawl under it; and, at the same time, the surface always remains dry and

crisp, offering a safe and clean bed for the fruit to rest upon. This supposes, of course, that care is taken in spreading it not to lay on too much; enough to cover the surface of the ground, but not more, is all that is required.

When tiles are employed, each tile should have a circle four inches in diameter cut from its centre, be 12 inches square, and be in two parts. They might be made for a very few shillings per 1000, and less than half that number would cover a bed six feet by forty. It would improve their assistant-ripening powers if painted with coal-tar.

A tile of another form for this purpose has been lately invented by Mr. John Roberts, of 34, Eastcheap, London. It is represented in the accompanying woodcut, and is thus recommended by him:—



"My horticultural double tile and socket when placed around the plant keeps it free from dirt, shades the surrounding earth from the sun, thereby requiring less water, and prevents the growth of weeds. The heat absorbed by day will nourish the plant at night, and produce fruit much finer and earlier. The tiles are placed on feet to allow the wet to run under; and should the plants grow so large as to overhang the tile, they can be kept in their places by means of a small socket. The expense is trivial, compared with the durability and saving of labour, for when once purchased they will last for many years." We think they would be better without feet, for the hollow underneath is a shelter for slugs.

PELARGONIUMS.

The following were in collections taking either first or second prizes at the Horticultural Society's Show at Chiswick, June 9th.

Aurora	Negress
Beauty of Clapham	Norah
Bertha	Orion
Cassandra	Pearl
Centurion	Pericles
Candrella	Pictum
Crimata	Princess
Chimborazo	Rosamond
Delicatisima	Rosetta Superb
Duke of Cornwall	Salomander
Forget-me-not	Sarah
Gustavus	Sir Robert Peel
Hebe's Lip	Sikh
Isabella	Star
Margaretta	Sylvia
Matilda	Xarita
Milo	Zenobia
Miss Hoffman	

FANCY VARIETIES.

Anias	Lady Flora
Defiance	Madame Meillery
Empress	Mulatto
Hero of Surrey	Orestes
Israhim Pacha	Queen Victoria
Jehu	Reine de France
Jenny Lind	Statuiski
La Belle D'Afrique	Yent-Marianna

The fancy pelargoniums are certainly a new feature

in geranium growing, and are very beautiful when exhibited in such fine specimens as were seen at Chiswick. There is a neatness and elegance about them that is exceedingly pleasing; grown as the exhibitors manage their plants they are great ornaments to the greenhouse. Amongst the many nice varieties now cultivated there is none in our opinion superior to *Anias* as a light one, and *Statinski* as a dark one.

Amongst the seedlings of this class Mr. Ambrose had one named *Beauty*, of a dark colour in the upper petals, with the lower ones blotched with rose, which promises to be a very good variety; also *The Garland*, a variety with a goodly quantity of that beautiful rose-colour, similar to *Anias*; and *Formosa*, of a much deeper rose and better shape.

In the collections of the other kinds of pelargoniums, amongst the older varieties, Mr. Stains's *Pericles*, *Miss Holford*, and *Pearl*, were splendid specimens of beauty and skill. Mr. Cocks, of Chelsea, had also a very fine scarlet-ground variety, named *Salamander*, which, for high colouring and large trusses of large flowers, was much and deservedly admired; he had, also very fine, *Centurion*, a dark flower; *Pictum*, rose chiefly; and *Rosamond*, a deep rose.

Mr. Robinson's *Forget-me-not* was a specimen not easily to be forgotten; it is a grand improvement upon the *Duke of Cornwall*; also his *Pearl*, *Sarah*, *Negress*, and *Beauty of Clapham*, were exceedingly fine. Seedlings of this class that were worth growing again were somewhat numerous. Beck's *Major domo* struck us as being one of the best both in form and colour, always excepting Hoyle's *Prince of Orange*, which was described in our account of the May meeting; this splendid variety was again shewn at this meeting, and again in excellent condition; every geranium grower must have it. Hoyle's *Rubens* and *Ajax* are also first-rate varieties.

Upon the whole, the shew of pelargoniums was respectable as to quality, but deficient, sadly deficient, as to quantity; indeed, if the fancy varieties had been absent the tent would have been half empty. How are we to account for this? The fashion is to shew such large plants that very few individuals either can or will afford greenhouse room enough, and this is the grand reason why there are so few competitors. Reduce the number of plants required for each prize, or have two sets of numbers. Why not have threes or fours as well as sixes? We throw out these hints for the serious consideration of the Council of the Horticultural Society.

PELARGONIUM EXHIBITION.—Agreeably to advertisement, an exhibition of seedling pelargoniums took place, on Friday, the 15th instant, at Upton Park, near Slough. This exhibition is got up by the raisers of Pelargoniums for the express purpose of proving their seedlings. Competent judges are chosen, and the plants placed before them to adjudicate upon; their judgment is to be final, stamping, of course, a great value upon such as they give prizes to. We like this plan much; there can be no mistake in this matter. The ordeal that each flower exhibited has to go through, should it win a prize, gives it "a character for life."

The following were judged worthy of their respective prizes:—Foster's *Gipsy Bride*, a dark fine variety; *Magnificent*, a noble rose variety, raised by Major Foquet, Isle of Wight; *Field Marshal* (Veitch and Sons, Exeter), a bright scarlet-ground variety; *Aurora's Beam* (Beck), a dark rose variety.

EXTRACTS FROM CORRESPONDENCE.

DRIVING AWAY MOLES.—In your answer to Jethero, on the 10th of May, you say you know of no method of driving away moles out of his garden. Now, there is a very simple plan I have seen adopted, and, if Jethero still wishes to drive them away after what you have told him, he had better get some good strong onions, old ones will be best, and cut them in halves, and put one part just under the ground wherever he can perceive the moles at work; he will find they will very soon quit the premises: the smell of an onion fresh cut, it seems, is too strong for them.—THOMAS, Boxley Road, Maidstone.

PEAS BOILED IN THEIR PODS.—In your answer to correspondents, under this head, you state that they can be procured in Paris, which is quite correct. They are grown all over the continent, and as far north as Sweden, but they are likewise grown to a very great extent in this country, I myself having two acres planted out for seed, comprising the under-mentioned sorts, which are those cultivated in this country:—Dwarf Sugar (or eatable pods), three feet high; Tall Sugar, five to six feet high; and Tamarind Sugar, five to six feet high. This last is very curious, the pod resembling the fruit of the tamarind, from the peas showing prominently outside; the pods of this last will grow five inches long and one inch broad. For cooking, care must be taken that they are young.—D. HARRIS, Seedsman, St. Martin's Lane.

AMERICAN BLIGHT.—In your 34th number you enumerate many recommendations for getting rid of the American blight from apple-trees. I have, for many years, used one which I have never found to fail, and is perfectly harmless to the trees, viz. spirits of turpentine. This year, thoroughly to test whether it would hurt a tree, I caused one to be washed all over with it, and it now appears one of the most vigorous plants in the garden.—C.

MOON'S INFLUENCE.—I beg to inform you that I have tried planting peas in the increase of the moon, and in the decrease. Those planted in the decrease look much better, and are a great deal thicker, than those planted in its increase. The soil, the seed, and the situations are exactly the same in each. The first crop was planted on the 19th of March, the other on the 28th. There is at least a fortnight difference in their appearance.—A GREAT ADMIRER, *Malvern*.

[A great many more experiments, and all agreeing in their results, must be recorded before we shall have the belief established in us, that the moon's age at the time of sowing has any influence over the productiveness of the future crop.—ED. C. G.]

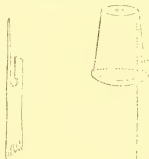
ENTIRE EATABLE PEAS AND AUTUMN PLANTING POTATOES.—Seeing a notice about the entire eatable pea in your useful Journal, I inquired of my brother, who grew some at Mottingham last year. He says they are neither a profitable nor yet a very good pea, unless eaten so young as to be wasteful. They are not equal to the kidney bean, between which and the common pea, he says, they appear to be a cross (if such a thing is possible.) With respect to autumn planted potatoes, I may add the experience of my last year's crop, which was a very good and healthy one up to the time we began lifting, which I intended doing by taking up every alternate row as required. We had not gone far when they were attacked with the blight, the tops all fell, and the potatoes became so spotted that I thought it advisable to lift them at once during the wet weather we had, and to dry them on a hot plate. These did not keep while we used

them, and those left undug were worse still, so that it was quite impossible to save any for this year's planting. While those that were dug loose in the ground, but escaped notice, have come up amongst the cabbages, which were planted immediately, in such a strong and healthy manner that I have filled up the gaps in my this year's crop by transplanting them. One I measured this morning is 16 inches high and strong in proportion, with only one stem. On those planted by the gardener next door, early in April, I counted fifteen slight stems on one root; most of those missed in the ground, as stated, were perfectly sound in March, and these with the spots on appeared to be just as they were in the autumn, and the remainder of the potatoes sound. I shall certainly next autumn, if mine are attacked, dig them loose from the stems without taking them up until wanted.—P. M. L., *Stockwell*.

STRIKING CUTTINGS.—I have substituted hyacinth grasses for phials, and white sand for mould, in striking cuttings of roses and fuchsias, and in my opinion they look infinitely better, and are more secure while standing on the window ledge. I certainly have found it an excellent plan, and am much indebted for your suggestion.—AS ADMIRER OF YOUR JOURNAL.

SHELTER FOR FLOWERS.

—I send you the accompanying drawing of a simplified method of shading, or protecting, flowers from sun or rain. A friend of mine who is a grower of tulips, wishing to retard some of the forward bloom as well as protect them from the recent rains, and not wishing to place an awning over the whole bed, was at a loss for a simple, yet efficient plan, until Mr. John Gale, of this place, gave him the above, which answers admirably. It is suited to any description of plant or flower, by using various sizes of sticks and pots, and is considered to be the best and most efficient mode of partial shading known here.—H. K., *Whitby*.



TO STOP A VINE'S BLEEDING.—The following described cement I have found the most effectual to prevent a cut or broken vine from bleeding. I keep it in a small glue pot to prevent it from burning, when heated for use.—2 oz. of rosin, 1 oz. of bees' wax, and 1 oz. of red ochre: while in a melted state add a little plaster of Paris. The late Mr. Knight recommended a mixture of quick-lime and the poorest cheese pounded together. I have used this, but in very bad cases I have not found it to answer, though it usually has the effect desired.—REV. C. A. A. LLOYD, *Whittington, near Oswestry*.

BOSCOBEL OAK.—I would just mention that the "Royal Oak," as it is called, is still growing at Boscobel. It is a rather fine looking tree, and is enclosed within iron palisades; and though I was born and reared within a couple of miles of the place, I really could not say for certain whether I always saw it as it is at present. I think I may safely say it has been in its present state for at least twenty years.—A LOVER OF GARDENING.

VINEGAR PLANT.—Your correspondence must, I think, be the most numerous and troublesome part of your editorial duties, and which I am bound to say you most faithfully discharge. I thank you for your

answers to my queries, yet I could not forbear sailing to think that I had been familiar with the "vinegar plant" of your correspondents for more than 40 years without being aware of it. It turns out to be no "plant" at all, but mere inorganic matter, mucilage, an invariable product of the acetous fermentation, and the vinegar made with it, merely sugar vinegar, the cheapest as well as the best that can be used for pickling, of which more anon. All other home-made vinegars, either expend part of their preserving qualities on the juices of the vegetables employed (cowslip for instance), or, as in the case of gooseberries, contain another acid beside the acetic (vinegar), viz., the malic acid, abundant in all our fruits, but which rather detracts from, than assists in, the preservation of vegetables. The "vinegar plant" I have said is mucilage; it is called by the French and Dutch vinegar manufacturers "mother of vinegar," as it is found that a portion of it put into a fresh brewst materially accelerates the acetous fermentation, though, from many years' experience, I much doubt a good vinegar being made in so short a time as "five weeks." I am of opinion that in that short time the whole of the alcohol (the first product of fermentation), would not be decomposed, nor would the whole of the mucilage be separated, the latter condition being essential to a good vinegar for pickling. Indeed, the boiling of vinegar in this process is only intended, by coagulation, to separate any mucilage that may remain. In my family for six and thirty years we have been in the habit of making a nine gallon cask every year, and I do not remember ever having heard complaints either of the pickles not keeping, or turning soft. I ought to apologise for being so diffuse on a subject unconnected with horticulture, but having been formerly rather deeply engaged in chemical pursuits it is a subject on which I feel myself quite at home. I enclose a copy of our recipe for making vinegar, which you can use or destroy at your pleasure.—EDWARD MORRIDGE, *Ringstead, Norfolk*.

[As you desire, we have omitted your postscript, assuring you that the subject would be most acceptable for our pages. We differ from you as to the nature of the "vinegar plant:" believing it to be of the fungi family.—ED. C. G.]

CHAMOMILE IN TURF.—If it be true chamomile (*Anthemis nobilis*), why should your correspondent, "Beta," (p. 137), get rid of it? In the soil which really suits this plant, a quartzose sand, I have seen the very finest turf composed of chamomile only. It has an elasticity which a grass turf never possesses; is so thick that you cannot put a needle between the leaves nor see the least particle of the soil; when trodden on emits a most grateful fragrance; and in the most burning summers preserves a perpetual and vivid verdure, which in a sharp sandy soil, grass-turf will not do; of course, it must be often mown to keep down the blossoms. If the soil be such, to which the plant is native and congenial, it might be wiser to convert the whole turf to chamomile, than to root out that which intrudes there.—W. P. T.

QUICKEN GRASS.—I would suggest a fourth way to

* Dissolve 10 lbs. coarse sugar in eight imperial gallons warm water, add a little good yeast spread on a slice of bread, at a temperature of 85°; let it stand in an open tub in any warm place in the house for two or three days; skim off the yeast that will have formed, and run it out. Leave it unbunged, and when the weather gets warm place it out-doors in the hottest aspect you can. It will be necessary so to cover it that the rain cannot get at it; a hollow tile we use, and cover the bung hole with a piece of coarse gauze to prevent the flies entering. In six months it will be fit for use or bottling. May is the best month to make it in. Perforated zinc or lead should not be used; the salts and oxides of these metals are highly poisonous.

get rid of *tritium repens*, in addition to those mentioned by you at p. 138. Neither that, nor any other creeping-rooted grass will long endure, unless it has loose, deep, and light soil. No one ever saw *Tritium repens* in or round the gateway of a field where cattle or sheep are frequently driven in and out, nor in a field which has been for some years habitually depastured, unless it be in the hedge-rows and banks, where the cattle do not tread. If your correspondent, "Amateur," will try frequent rolling with a heavy roller, I am induced to think he will find the *Tritium repens* gradually disappear, without deforming his lawn by digging it up for a potato crop, or trenching. Any other mode of compression, as the making his lawn a fair field, or a village cricket ground, or the site of a bazaar, or a horticultural exhibition, or folding it with sheep repeatedly, will have the same effect.—W. P. T.

DESTRUCTION OF ANTS.—It may be useful to know that I have found a moderately strong solution of the common washing soda available for destroying ants. In two spots in our garden they have not appeared since I gave their hills a good soaking. The soda does not appear to have injured the box (against which the hills were thrown up) in the least degree.—WILLIAM H.

DEATH OF A DISTINGUISHED GOOSEBERRY GROWER.—We have this week to record the death, under very melancholy circumstances, of one of the most successful cottage gardeners in the north of England, namely, of *Mr. John Dees*, mason, of Gosforth, near Newcastle-on-Tyne. It appears that on Thursday last, the deceased, together with a fellow-workman, was engaged in making a "staple," and whilst suspended in a cage down the pit-shaft for that purpose, an explosion of fire-damp took place, which upset the cage, and precipitated them to the bottom, a distance of fifty yards—both being dreadfully mutilated. The deceased mostly excelled in the cultivation of fruit and vegetables, and many are the instances recorded in the local newspapers, for years past, of his numerous successes in winning prizes at the different shows in the district; but in the cultivation of the gooseberry he pre-eminently distinguished himself, and vanquished all competitors in the neighbourhood. Last year he grew a red one to the weight of 32 dwts. 5 gr.

DESTRUCTION OF POTATOES IN LANCASHIRE.—The potatoes on the moss lands in the neighbourhood of Garstang, in Lancashire, have been totally destroyed by the late frosts, the first of which occurred on the morning of May 28th, the second on the 8th, and the third on the 13th of June. By this last attack the hard land potatoes have also suffered considerably. Whether any of the tubers will yet be enabled to send forth new shoots is, at present, impossible to say, but the loss will, under any circumstances, be very great, as many hundreds, if not thousands, of acres are completely cut down by this unlooked for visitation. Replanting with the early kinds would be the best and most certain remedy, but such seed cannot at all times be procured.—*M. SAUL, Garstang.*

[We once knew a good crop of potatoes produced on some very dry land, and in a very favourable season, from sets planted in July; but we cannot consider planting in June, even the earliest sorts, anything like a "certain remedy" for the case in question. If the autumn prove wet and cold, there would be no crop worth consideration.—*Ed. C. G.*]

SCRAPS.

BEAUTIFUL BRITISH PLANTS, No. III.—*Barbarea vulgaris*.—Yellow Rocket.—This fine plant, a native of the sides of our damp ditches and small water-courses, is noticed on account of a double variety of it being pretty general in cultivation, thriving in almost any soil or situation, and blooming profusely during the summer months.

Cardamine pratensis.—Cuckoo Flower.—A beautiful plant enlivening our moist meadows with its elegant lilac flowers in the early spring months. There is a double variety in cultivation, well adapted for the shaded side of rock work.

Hesperis matronalis.—Dame's Violet.—This rather uncommon native plant should be in every collection where good flowers are grown. It has large handsome and fragrant heads of lilac flowers. From it has originated all the varieties of double rockets, from the brightest purple to white, which ornament our gardens, and never shall we forget the sensation produced on our first acquaintance with this odoriferous gem in its native grandeur near the town of Gargrave, in Yorkshire.

Draba aizoides.—Whitlow Grass.—A diminutive, yet interesting, rock plant, with its leaves collected in dense cushion-like tufts, and bright yellow flowers in March and April; well worthy the attention of the cultivator.

Draba incana.—Twisted-podded Whitlow Grass.—This interesting species is well worthy the attention of the curious from its great rarity, being seldom met with except on almost inaccessible rocks. Falcon Clints, in Durham, is one station where it is tolerably abundant.

Cochlearia officinalis.—Scurvy Grass.—A plant met with pretty frequently among the stones and banks of most of our rivers, with fine glaucous leaves and white flowers, blooming from early spring through most of the summer months. It is frequently met with on the sea-coast.

Helianthemum guttatum.—Spotted Rock Rose.—A very rare and interesting little annual, with bright yellow flowers, each petal of which has a bright red spot at its base: should be sown on fine soil in a cold frame, as the seeds seldom vegetate in the open air.

Helianthemum vulgare.—Common Rock Rose.—Of this beautiful and well-known rock plant there are splendid varieties, both with single and double flowers, through every shade of colour, from deep crimson to bright yellow.

Helianthemum polifolium.—Another of those beautiful rock roses which add such interest to the station where they are met with; with hoary leaves and white flowers. Very rare. The specimen in our herbarium is from St. Vincent's rocks, near Bristol.—*S.—Durham Advertiser.*

CARPATHIAN BELL FLOWER (*Campanula carpatica*).—Last summer we saw some large patches of this old herbaceous plant growing in a border so luxuriantly, and showing such a brilliant display of its blue flowers, that we resolved to recommend it for more general attention, and to inquire more about its habits, but a necessity for this is in some degree removed by the following communicated to the *Gardener's Chronicle*, by Mr. J. F. McElroy, of Stamford Hill:—"This desirable herbaceous plant grows rapidly, and may be readily increased in April by division; the (rooted) slips should be planted 4 inches apart in a bed of rich compost, well drained. In borders plant in patches consisting of five plants

each. The above mode of culture must be adopted annually, in order to ensure success. My plants quickly cover the bed in which they are planted, producing a mass of blue flowers during the latter part of the summer and the whole of the autumn months. Its height, when in flower, is from one foot to 18 inches. As seed-pods appear I remove them, in order to give strength to the plants, and to extend its season of blooming. If plants are not obtainable, a little seed sown in April in heat will produce flowering plants next autumn. There is also a white variety of this beautiful hardy plant." It has been for many years known to our gardeners, having been introduced here as long ago as 1774, from the Carpathian mountains in Hungary.

WHOLESALE DESTRUCTION OF BIRDS.—Mr. Bree, of Stowmarket, finding that in his district a system has been extensively introduced of poisoning birds by wholesale, observes in a letter which he has just published, "I take the liberty of predicting that in the course of a few years the farmers of this country will be unable to grow corn crops at all! You must not be startled at a supposition so bold as this. I will preface my explanation by a short statement made in works upon natural history upon the very best authority. Many years ago, the coffee plants in the Island of Madagascar were attacked by the grackle, a well-known bird on the African coast. The grackle is an insect feeder, but having used up the supply, it betook itself in pure necessity to coffee. An edict was speedily issued and carried into effect, for the annihilation of grackles, and every bird on the island was destroyed. All went on very well for a year or two; when, lo and behold, the insects and their larvae having the field to themselves began to make sad havoc upon the coffee plants. What was to be done? There was no alternative but that of bringing back the grackle, which was in due season imported. The coffee planters had, however, gained something by experience, and they resolved to prosper by the same; they managed to keep the grackle within bounds, and they well knew that he would do the same by the insects. And they were right. By preserving a *juste milieu* doctrine between the two they were enabled to grow coffee. Now I apprehend the farmers in the present day are much in the same position as the coffee planters of Madagascar. There has been for some time a system practised in this neighbourhood of poisoning birds by wholesale; thousands upon thousands have thus been destroyed, and the system continues. Can anything, I ask, be more absurd and irrational, I had almost said stupid, than this abominable practice? I will say nothing about the beauty and harmony of living nature, I will not whisper a syllable of the goodness, and beneficence, and wisdom of its great Author, for I know from experience that against prejudice in agricultural districts such arguments have no weight; neither will I attempt to picture the horror with which I have witnessed this familiarity with poison spreading like an evil pestilence among the beautiful of God's works. But this I will say, that if the farmers of England run blindly and wilfully into the proved and fatal error of the coffee planters of Madagascar, if they permit the grub and the wireworm to destroy the crops of this country—and this they will do most assuredly if they annihilate insect feeders—then they will not only effect their own ruin, but they will inevitably cause a great national calamity."

TO CORRESPONDENTS.

PEAS WITHOUT SKINS (*A Lover of Gardening*).—Thanks for these, which shall be allotted as you desire. Never mind "troubling" us—trouble is an editor's natural state of existence.

ASPARAGUS DEUS BADLY MADE (*A. H.*).—You must be the sole judge whether, after the nine inches are taken off the surface, according to the treatment recommended by us at p. 124, the beds will look too unsightly. Being below the surface will be no disadvantage to them, and the edges might be sloped off. The plants are too old to be moved with success; and, if you are determined upon breaking up your beds, you had better plant two or three-year-old plants next spring, from which you may cut in two years. You will find full directions for tank-making at pp. 135, 245, 273, 288, 306, and 312 of vol. 1., and at page 61 of this volume.

FILBERTS FROM SEED (*Vertumnus*).—It is quite impossible to foretell the quality of the fruit your seedlings will produce. In general, those with the largest leaves are best.

WORMS IN STRAWBERRIES (*Rev. E. F.*).—These are not "wire-worms," but, if we remember right, a species of millipede (*Julus*). If you will send us specimens we will tell you more about them.

HOT-BED OF TAN (*Pegusus*).—The tan must be three feet deep, and had better be made within a bin or frame of boards, and its bottom on the ground's surface. You may form it in a hole dug to that depth, however, if the ground is dry. The centipedes will do your plants no harm. Fresh tan, well drained, must be used. If carefully in the shade, nothing will succeed in your hot-bed except mushrooms.

CANKERED APPLE-TREES (*H. L., Dublin*).—Your Eve and peach-apples are not affected, but another, the Bellesante, is very severely cankered. The latter sends a tap-root into the subsoil, "a very wet, stiff, white clay," and none of these uncankered do root into this. As the surface-soil is good, and twenty-two inches deep, you need not hesitate to apply the obvious remedy. Dig a trench by the side of each cankered tree, deep enough and wide enough to enable you to get effectually at the tap-root, which cut through cleanly and entirely. All the cankered shoots must be cut off, and the sooner this is done the better.

MOSS ON FRUIT-TREES (*Ibid.*).—This also is evidence that your soil is too wet to grow apples, &c. healthily. Drain it thoroughly, or you will not keep away either canker or moss. To remove the latter, scrape it off, and brush the trunks and main branches over with a creamy mixture of lime and water.

SOIL FOR PUTTING (*A Novice*).—Your garden soil at Bolton-le-Moors is "stiff and cold," which will not do for potting purposes; but the nurseryman is quite right, he told you that "garden mould" (which is a loam) would answer your purpose, and you can get fresh loam from a pasture. We think the fly eating your young cucumber and cabbage plants must be the *Haltica nemorum*, described at page 93. Try whether scattering a little fresh gas lime over the surface of the soil among the plants, *not* *on* the grass, will banish the marauders. For your shaded border, try the plants recommended to "H. W., Tenkesburg," at page 138, for his north border.

ANTS, TO DESTROY (*L. H.*).—All the information we have to give upon this subject you will find at pp. 39, 51, and 114 of the present volume.

SEEDLING FUCHSIAS (*A Lover of Gardening, Watford*).—Treat them the same as the older plants. Answers to your other queries in our next.

ERECTION OF A GREENHOUSE (*J. H. Horsey*).—A platform stage is not so good as a series of shelves in a lean-to greenhouse; sliding shutters at back will answer for ventilation, if large enough. Flues are as good as pipes for such a greenhouse, but pipes are less trouble afterwards. The same heating apparatus will work a pit at one end. Five-pence per foot for glass and putty is too much, but we must not name tradesmen, they will send find if their interest to advertise in our columns, but they think us too young yet. Thanks for your kind invitation. Mr. Beaton cannot at present say more upon this subject. He has already given very full directions, which, if you read attentively, meet all your questions. All inquiries should be directed to "The Editor" at the Office, 147, Strand.

CAPE HEATHS (*A Lover of Gardening*).—You ask whether ericas might be grown in your garden in summer, and be moved into your house in winter?—Many Cape heaths grow in the open border in summer better, or at least with less trouble, than in pots—good peat and a drained border being prepared for them. In root rooms, with air duly, except in frosty weather, they certainly might be kept in health. In that case turn them outside every fine day, and in very severe weather put them down near the fire-place at night; and be most careful not to give them water too often, but when they are watered let all the ball be just wetted.

CARROTS AFTER POTATOES (*J. N. Siew*).—You ask whether you may sow short-horn carrots after potatoes, which will be taken up the last week in July? In reply we can state that it is decidedly better to sow horn carrots, or indeed any other kind; at least if bulk of crop is desired. We have, however, obtained some nice carrots sown so late as Midsummer on rich soil. Any of the common turnips may be sown, or any of the various groups, broad- or coleworts preferred. See Allotment Gardening for July in this number. Potatoes, as you justly observe, no perfectly satisfactory theory exists as to the blight. We take our stand on deterioration of the constitution of the roots; thus rendering it a fit medium to propagate with a fearful rapidity the myxas in question, which, under other circumstances, the plant would have borne up against.

UNFRUITFUL PLUM TREES (*Daniel Farago*).—We should much fear that the destruction of surface fibres, which must annually take

place through digging close to your plums, has the effect of rendering your plum blossoms abortive. Why dig and crop close to them? No fruit tree will long be successfully cultivated with so great an abuse. We hold that the upper nine inches of surface fibres is fairly worth more than the rest of the roots together. Try and remove your cropping four feet at least from the wall, and examine your plum blossoms next March, and perhaps you will find very many of them minus the pistil or female organ. If so, it is impossible to obtain a crop.

GERANIUMS (S. H. E.).—The leaves of some of these wither at the edge; and others do not increase the size of their leaves. You gave them some liquid guano, but only water lately. There is something the matter with them, probably they were over dosed with guano, which is fully as dangerous to plants, when used by amateurs, as gunpowder in the hands of children. Shake off most of the old soil from the roots, and repot in fresh light rich compost, using pots as small as will contain the roots without cramping. Keep the plants in a back room, or by some other means from the sun for the first ten days, and no more water than will keep the soil moist, but damp the leaves occasionally. This is always the best course for unhealthy plants in summer.

HEMIBRYANTHEMUMS NOT BLOOMING (A Flower-lover from Childfold).—Some mesembryanthemums never flower in England—some only partially, and others freely. There are from 300 to 400 species of them. Some of them require very different treatment from others, therefore to say, do this or do that with yours, without knowing more about your sorts, might lead you wrong; and as we are most anxious that you should be happy, we hesitate rather than write on chance. However all the family may be advantageously planted out on dry light soils on a south aspect during the summer; and cuttings of the young shoots made at the end of July, and kept in sandy soil, will answer for next season better than the old plants.

LOW IN WATER (A. B.).—Pans require hardly any water in a good Ward's case through the winter, and very little in summer. Over watering and rich soil induce mildew and mouldiness in these cases. After watering, the case should be left open for some hours to allow the excess of moisture to depart.

STREPTODIA. TROPICALLA (A. B.).—Bonariads are propagated in spring by short pieces of the roots, and in summer before they come to flower, by the young top of the shoots. The former way is the safest for you.

OLEANDER (A. B.).—You ask whether the oleander may not be cut by moisture and warmth to make a growth immediately after the pruning, which is to succeed its flowering. Your plan of cutting all the shoots off the oleander after flowering would only succeed where it could be "coaxed with moisture and warmth" like that you might bestow on it. Many things will do under certain circumstances that would not be prudent to put upon their roots, and keep them in dry sand or ashes, and plant out again early in May. They will flower strongly the second year.

CATERPILLARS ON ROSES (A Parson's Wife).—You say, "last summer most of my rose-trees were attacked by numerous very small green caterpillars, which fixed themselves on the under side of the leaves, and devoured all the surface, so that the leaf either dropped off or remained perfectly withered. My roses were thus miserably stripped, and of course the flowers ruined. This year I have watched narrowly, and as soon as any brown spots on the outside have revealed the attacks of the enemy behind, I have cut off and burnt the leaf, and washed the neighbouring ones with soap-suds. But I fear the plague spreads, more especially on the climbers which are above my reach. Can you inform me how to preserve my flowers at present, or how to destroy the pests another year?" All the knowledge we possess relative to these caterpillars is, that we saw their ravages in 1847 for the first time, but have no knowledge how to get rid of them. We have written to the gardener who had the misfortune, and if he gives us any information as to how he got rid of them, we will let you know. A dusting of white hellebore powder will perhaps destroy them.

SEEDS OF WINTER ACONITE AND WINTER VIOLET (A. B.).—These may be sown as soon as they are ripe. They are very seldom reared that way. The winter aconite is increased by its roots like a crocus, and the violet from cuttings any time through the summer, and by dividing the old plants after flowering.

DISSOLVING BONES (Clericus Rusticus).—In twelve hours they ought to be dissolved, if broken in small pieces, and treated with the oil of vitriol precisely as we directed at p. 42 of our first volume. We do not give the net-maker you refer to.

BEES SECOND SWARM (Nasica).—To prevent your bees swarming a second time is quite an impossibility. After having once swarmed, they will do so a second time, *da what you will*, except you venture upon turning up the hive, and cutting out every queen's cell that it contains. Perhaps you will be able to purchase a cast (second swarm), and to have it hived into one of "the cottage hives," and join your own to it when it comes, and so make another stock. Your old bell-shaped hive you had better keep as it is, to produce swarms, so long as it will last. The time of the second swarm leaving you will know by the queen's "piping."

NERIUM OLEANDER (A Cottage Subscriber).—Your blossom-buds "do not progress much," and, as your other treatment seems correct, we think that all it requires is to be kept standing in a saucer constantly filled with water, until the flowering is over. See Mr. Beaton's excellent essay on this at p. 286 of our first volume.

SULPHATE OF AMMONIA (A Friend of Chemistry).—Carbonate of ammonia (common smelling salt) is a powerful manure, and requires to be used much weaker, and is not found to be so beneficial to plants as the sulphate. Why not dissolve the carbonate in water, and add oil of vitriol to it as long as any effervescence continues? You would then have formed a solution of the sulphate of ammonia.

BROMPTON AND QUEEN STOCKS (W. H. G.).—Your north border will do very well as a nursery for your seedlings until the autumn.

VEGETABLE-NARROW (G. I. Bell).—This may be trained over your "slanting jagged rock," at the back of your border. If you

cannot keep its runners in their places by hooked wooden pegs, use a few small staples driven into the mortar, and tie the runners to these.

LIQUID MANURE (A. B.).—You may use this to all kitchen-garden crops with very great advantage. Do not use it too strong, nor often than once a week, in dry weather. In wet weather you may give it twice a week. We must make the following extract from our correspondent's letter:—"I was greatly laughed at for some time after using the liquid, or the 'nasty stuff,' as my neighbours called it, but now, seeing the good effect of it, they are servile enough to beg a canful now and then, and some are constituting tanks of their own to supply their pig-styes. The liquid which flows into mine comes from a large farm-dock adjoining my garden; but I am afraid the farmer, who is beginning to see the good effects of it, will be diverting it into another channel for his own use: and all this good has been done by a twopenny paper!"

CLAYEY SOIL (T. Morgan).—Your "brick earth" soil rests upon chalk as its subsoil, your remedy, therefore, is beneath you. Mix a heavy dressing of fine chalk with your soil, and this thoroughly incorporated with it in sufficient quantity will render it open, easily workable, and fit for general garden crops. It will not do for potting purposes. We cannot guess what the saline contents of your spring are. Is the red matter which tinges the plants feruginous? May it not be vegetable matter? Your other questions will be answered next week.

PHILOX AND ROSE DISEASE (J. Warple).—We are always happy to answer inquiries, however simple they may be, but we intrust our correspondents, and you amongst the number, to describe all the circumstances of the case. You say the leaves of your philox are all turned white, but you do not mention how long it has been so. Is it in your best soil, or what kind of soil it is planted in, nor the aspect, all of which may have to do with the disease. Your moss rose, too, you say, quarterly enough, "don't care whether it lives or dies." We presume, then, that some or all of the same causes mentioned in the case of the philox are operative upon it to prevent its recovery. The Leaf miner would tell us if your soil is good, the aspect open to the rays of the sun, and all insects destroyed as they appear. At this time of the year you can do but little to restore them to health. Pray write again more fully. In the meantime remove as much of the old soil as you can without disturbing the roots, and place some fresh soil about them, destroy all insects, and, if your garden is in a dry situation, water frequently.

MARVEL OF PERY SEEDLINGS (A. B.).—This is a plant from South America, with roots something like a dahlia. Plant them out singly, at two feet apart, in a rich loamy soil. It is very probable they will flower this autumn. As soon as the first frosts destroy their tops cut them off and plant up their roots, and keep them in dry sand or ashes, and plant out again early in May. They will flower strongly the second year.

LIST OF ROSES FOR THE SIDE OF A TERRACE (A Subscriber).—The classes of roses best adapted for the purposes you describe are the more hardy China, the hybrid Perpetual China, and the hybrid Perpetual Bourbon. From these three classes we have selected the following: *Almeida*, rich red; *Crimois de Hollande*, velvety crimson; *Eugene Hardy*, white; *Madame Breton*, rich rose; *Mrs. Bosanquet*, delicate pale flesh; *Safraon*, yellowish. *Hybrid Chinese* (very hardy): *Auberun*, bright rose; *Doctor Hark*, carmine; *Edward*, deep magenta; *Reine de la Grande*, pale pink; *Reine de la Grande*, dark crimson. *Hybrid Perpetual Bourbon*: *Bosnet*, crimson vermillion; *Comtesse Jaubert*, clear peach; *Due d'Alencon*, lilac rose; *Gloire de Rossmore*, brilliant carmine. The above, we should think, will be quite sufficient for your border. To cover the slope we would advise some of the Ayrshire roses, such as the *Ayrshire Crown*, *Bennett's Seedling*, and *Rose Raga*, with two or three of the evergreen roses, as *Felicite perpetuelle*, *Myrianthus*, *Ronoeulle*, and *Rosa plena*. On the bank you might also plant three or four of the Cotoneaster, and a few plants of the Irish ivy. These must be kept close pegged to the ground with hoops. The roses will run among the ivy, but you must altogether they will form an agreeable ornament to the dwelling, especially if some climbing roses are planted against its walls.

DAHLIA PANS (W. S. Dolston).—The circular pans for the protection of dahlias where earwigs abound will not prevent them getting to your flowers, for earwigs can fly. Your fear that the pans will harbour slugs has some foundation in fact, but you must wash them by means of brewers' grains, buttered cabbage leaves, and watering now and then with lime water. If the pans are bedded a little into the soil, that will help to keep the slugs from getting under the pans. To catch earwigs, look over your flowers every night with a lantern and candle. Place small pots with a little short hay or moss in them upon the stems. Examine these traps every morning, and destroy the insects they may contain.

ROSE BUDS FALLING (A. B.).—Your rose-tree sheds its flower buds before they open. It is wrong at the roots. When the leaves fall in autumn, take it up, prune the roots, drain the spot, put in fresh earth, and replant. This will cure the evil, or nothing else will.

BEES (E. W. A.).—If you look for any further profit from your bees in the improved cottage hive, disappointment will in all probability be the result. The first bad thing you did was to give an "eke" with nothing between it and the hive, in which your bees had been put the same year. Had you placed a large glass, or box, upon the top, all might have been well. The next bad thing was to give the bees a new place in the hive all the winter in, and out of, from this numbers died in the hive, and the survivors have never recovered, and more probably than not, they never will. You are right as to the reason of their not having swarmed, "the eke beneath the hive giving too much room." Its removal will most likely prove fatal to the stock. If you cannot get rid of it, remove it in February, or during it. The bees have been kept quite warm enough while in the out-house;

unfortunately, too much so. Your hive is weak, and where that is the case, drones are always late in making their appearance. In your case you say there were none on the 14th instant.

CUTTING BACK GERANIUMS (*A Beginner*).—You wish to have as many cuttings to propagate by, and yet have the old plants flower well next season. Cut the strongest shoots of your geraniums to three joints from the old wood, and the weakest to two joints. All cuttings are made by a horizontal cut, close below a joint. The length of geranium cuttings depends on the length between the joints. Each cutting should have three or four joints, except very rare ones, and they need have no more than two joints. If by "woody cuttings," you mean the brown ripe wood at the bottom of the geranium shoots, they will strike root, but will take longer time to grow ones. Put these in separate pots; they may be three or four inches long. If you mean cuttings of woody plants, the question is too general.

STOPPING (*Ibid*).—This word is applied to fuchsia and all other plants, and merely means pinching off the tip of the shoots with the finger and thumb.

CUTTINGS OF WALLFLOWERS (*Ibid*).—These are best when young shoots of this season's growth, three inches long, and torn, as it were, from the old branch. They are then called slips. The tail of bark from the old plant which comes off with these slips is then cut off, leaving a "heel," or small piece. Young tops of wallflowers, three inches long, will also strike easily. *Rose Cuttings* may be made in two ways—just like the wallflowers above.

CUPREA PLATYCENTRA SEED (*L. D.*) may be sown now, and will come up freely in a greenhouse. But it is raised from cuttings so easily, that we would rather recommend propagation in this way.

FUCHSIA FULGENS (*A Constant Subscriber*).—The leaves on your plant are few, and the flower-buds drop off when about an inch long. It is two years old, has four stems, and has had guano-water occasionally. This fuchsia was not cut down low enough in the autumn, but, if that is the cause of its casting its premature blossoms, it will soon recover. What need had fuchsia fulgens of guano-water till all its leaves were full grown? The roots most probably were injured. There should be an act of parliament against the use of guano for pot plants; the operator had served an apprenticeship to this branch of culture. Mr. Beaton declares that no aquatic and very few grasses, should use guano at all for pots, and that nothing more destructive to pot plants has ever been thought of. It is much more difficult in its application than common salt.

TANK (*T. Jones*).—If you can make a rough box of old planks six feet by four feet, and so have room for a foot thickness of well-puddled clay beneath and all round it, it may hold liquid-manure as you suggest; but there must be no stones, or parts not well puddled together, in the clay. The space over your dyke being covered with good mould, seven inches thick, will, if well manured, do well for celery, but do not make a trench for the plants on the surface. Thanks for your letter, from which we will publish an extract.

GIGANTIC PARSLEY (*L. R.*).—We do not know this, unless you mean the *Humburg*, or *Large-rooted Parsley*. Write again if you do.

HEATING A SMALL GREENHOUSE (*L. M. Devon*).—The best mode of heating this is either by a stove or flue, at p. 269 of our first volume, or by the usual furnace described.

SILK WORMS (*R. D. W.*).—Their dying so young may arise from many causes. There is a parasitic fungus which kills them. But, if this be not present, giving them too much of juicy mulberry leaves will cause an epidemic diarrhoea among them. Some breeders of silk worms do not give them any mulberry, or other leaves, till they have cast their first skin; but, if this is an excessive precaution, still it is quite certain that they ought to be fed very sparingly whilst young.

NAMES OF PLANTS (*M. F. Gloucestershire*).—That with the clustered flowers, *Valeriana rubra*. That with the most finely-divided leaf, *Geranium sanguineum*. The other, *Geranium thierium*. (*William T.*)—What you call "Balm of Gilead" is not known by that name, but is *Elettaria cardamomum*. From the single leaf sent, we should think it is from *Valeriana americana*. The dark-wooded evergreen is *Cytisus sessiliflorus*, and the other species (*Cytisus foliosus*, now called *Adonocarpus foliosus*). (*T. P. Humbledon*).—The purple coloured is the Bee Orchis, *Ophrys apifera*; and the other, with a yellowish green spur, is the only chance variety. If you find many similar, could you oblige us with another specimen or two. (*H. R.*)—Your specimen was accidentally destroyed; we think it was *Geranium striatum*, but you had better send us another specimen. (*G. Duxbury*).—Your spray, we think, is of the Spindle tree, *Eunonymus europæica*, but the specimen was very much damaged.

CALENDAR FOR JULY.

GREENHOUSE.

Air, admit freely to all plants detained in the house, but carefully exclude frosty winds. **BEE**, Oranges, Lemons, & **CAMELLIAS**, sprudge and water frequently; shade in hot days. **CUTTINGS**, slips, &c., water. **DIESS** and give earth as required. **HEATHS**, plant slips. **LAYERS** may be made. **MOVING** out of house. (See June.) **ORANGES** and **LEMONS** require water almost daily; thin fruit if thick; remove blossoms when four is thick enough; give earth; air admit freely. **PEAT PLANTS**, examine almost daily; see that they do not dry. **PROPAGATE** by cuttings, slips, &c. **SEEDLINGS**, prick into small pots. **SHADE** during hot bright days; calico frames are best. **SHIFTING**, complete, b. **STOVE PLANTS** (*Hardier*) may be

moved into greenhouse. **STAKE**, trim, and train as required. **SUCULENT** plants, cultivate by cuttings, slips, and suckers. **WATERING** and clearing are now the chief occupations; apply water early in the morning by the engine.

Gather the seeds of *Polegonium* as they ripen, and head down those which have bloomed early. *Coleocalaria* from which the bloom is passed place in the shade and water sparingly. Those for producing seed keep still under glass, and cut away one half their flower stalks, which will strengthen those remaining, and increase the chance of obtaining good seed.

FLOWER GARDEN.

ANNUALS (*Tender*), bring out from frames; dress; give fresh earth; stake and tie. **ANNUALS**, transplant generally. **ARCTICULARIS** in pots, dress and water frequently; seedlings transplant; old plants repot, &c. **BUX** edgings plant, b. **BUBBING** of roses, *Jasmines*, &c., complete. **BULBOUS ROOTS**, take up (see June); seeds, sow. **BEANS**, autumn flowering, plant, &c. **CARNATIONS**, attend to (see June); shade and shelter during hot weather; water freely, and give liquid manure. **CHRYSANTHEMUM** suckers separate and plant; lay. **CUTTINGS** of some plants, as *Scarlet Lychnis*, will yet strike, b. *Danlias* require support and pruning. **EDGINGS**, plant, b. **EVERGREENS**, prune; seedlings, prick out. **GRASS**, mow and roll over. **HEATSEARS**, plant slips, &c.; water freely. **HEDGES**, cut. **HOE** and rake at every opportunity. **LAYING** *Carnations*, &c., may be performed, b.; water freely; transplant rooted layers. **LEAVES**, decayed, remove as soon as seen. **LIGUID MANURE**, give occasionally to flowering shrubs. **MIGNONETTE** and a few other quick flowering annuals may be sown, b., for autumn. **PILING** of *Pinks*, &c., may be still practised, b. **PRÆLARGIUM** cuttings plant, b. **POLYANTHUSES**, seedlings, transplant; roots of old, part. **ROSES**, bud and lay, b. **SEEDS**, gather as they ripen. **STAKE** and tie up plants wherever necessary. **TRANSPLANTING** perennials and biennials, complete, b. **WATER** freely, not only the roots, but over the foliage.

ORCHARD.

BUBBING perform in all stone fruit, Apples, and Pears; select cloudy weather. **ESPALIERs**, continue to regulate (see *Wall Trees*); young ones head down. **FIG-TREES** regulate, remove over-luxuriant shoots. **MIAT** over Currants, Gooseberries, and Raspberries. **NET** over Cherries, Currants, &c. **PRUNING** (summer), complete. **RASPBERRIES**, clear from needless suckers. **SNAILS** and slugs, search for morning and evening. **STOCKS**, clear from lateral shoots. **STRAWBERRIES** for forcing, lay in pots; select *Hautbois* plants mark, that they may be destroyed. **VINES** require constantly regulating; all late produced shoots remove; stop bearing shoots. **WALL TREES**, continue to regulate as their shoots require; train in. **WALNUTS**, gather for pickling. **WASTES**, entrap; bottles of sugar'd beer are best. **WATER** newly planted trees in dry weather; keep much round.

Do not lay in too many shoots of the *Fig*, when nailing it to the wall. Nip off the terminal bud from each shoot retained. In dry weather throw water of an evening over the wall trees by means of the engine. *Early Pears* gather for use before quite ripe; this will increase their flavour and juiciness. Among the best varieties ripe this month are the *Citron des Carnes*, and *Muscot Robert*.

KITCHEN-GARDEN.

ALEXANDERS, earth up. **ASPERICHES**, attend to. **ASPARAGUS**-**REDS**, clean; leave off cutting from. **BEANS**, plant, b.; leave some in production for seed. **BUT** (*Red*), thin, b.; (*Green and White*), sow, b. **BORAGE**, sow, &c. **BROCCOLI**, plant; prick out seedlings; sow; earth up advancing. **CARROTS**, thin, b.; sow, b. **CARTEL FLOWERS**, plant, &c. **CHESTNUT**, plant. **CUCUMBER**, prick out; plant; earth up. **CHANONILE FLOWERS**, gather. **CHEVIL**, sow, &c. **COLEWORTS**, plant. **CORIANDE**, sow. **CRESS** (*American*), sow. **CUCUMBERS**, attend to; make layers for late fruiting. **EARTH-UP** where necessary. **ENDIVE**, plant; sow. **FENNEL**, earth up. **GASTIC**, take up as wanted. **HORING**, particularly attend to. **HORSE RADISH**, attend to. **KIDNEY BEANS** (*dwarfs*), sow; (*runners*), sow, b.; attend to advancing crops. **LAVENDER**, gather. **LEEKs**, weed, &c.; plant principal winter crop, b. **LETTICES**, plant; sow; leave for seed. **MARIGOLD** *Flowers*, gather. **MARIGOLD**, gather for drying. **MELONS**, attend to; plant, b.; give air abundantly. **MINT**, plant, b. **MUSHROOM-REDS**, attend to; make, &c.; spawn, collect. **ONIONS**, weed, &c.; press down leaves; sow, b. **PARSLEY**, sow, &c. (*Humburg*), thin, &c. **PARSNIPS**, weed, &c. **PEAS**, sow; hoe advancing; leave for seed. **PERFECTION**, gather. **PONIONS** are fit for pickling; attend to. **POT-HERBS** are fit in general for drying and distilling. **RADISHES**, sow. **RAMPION** is fit for use, &c. **RARE** (*edible root*), sow. **SALSIFY**, thin, &c. **SAVOYS**, plant. **SCORONERA**, thin, &c. **SCURVY GRASS**, sow. **SEEDS**, gather as they ripen. **SHAL** *SALADING*, sow. **SPINACH**, sow; hoe and thin. **STIR** ground between plants. **SUCCORY**, sow. **TURKISH**, sow, b.; hoe advancing crops. **TURNIP** *CABBAGES*, prick out. **VACANT** ground, dig; free from weeds, &c. **WATER** where necessary. **WORMWOOD**, plant.

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WEEKLY CALENDAR.

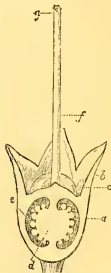
M D	W D	JULY 5—11, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
5	Th.	Chaffinch's song ceases. [Meet.	Double Yellow rose	52 a. 3	16 a. 8	rises	16	4 11	186
6	F.	Old Mids.-d. Cam.T.e Bot. Soc.	Bearded Crepis	53	16	8 a. 39	16	4 21	187
7	S.	Th.sBeck. Oxf.T.e. Glowworm shines	Nasturtium	54	15	9 15	17	4 31	188
8	SUN.	5S.AFT.TRN. Jaypit moth seen	Evening Primrose	55	15	9 45	18	4 40	189
9	M.	Shore beetle seen	Marsh Sowthistle	56	14	10 13	19	4 49	190
10	Tu.	Yellow-under-wing moth seen	Speckled Snapdragon	57	13	10 39	20	4 58	191
11	W.	Elephant Hawk moth seen	Yellow Lupine	58	13	11 4	21	5 6	192

THOMAS A BECKETT, Lord Chancellor and Archbishop of Canterbury in the time of Henry II., was born at London in 1119, and married in the cathedral of his see, by four of the King's retainers, on the 29th of December, 1170. Beckett's remains were translated on the 7th of July, 1220, to a sumptuous shrine at the east end of that cathedral; and this day has ever since been noted as his anniversary. We cannot afford space for the consideration of the merits or demerits of Beckett, but we must warn every one, when reading his biography, to consider that he was no less opposed to the excessive tyranny and power of the barons than he was to the misrule of the King. To control these there was no other engine at his command than the Church; for the people, as a political power, did not then exist. Without he- stants at all blind to Beckett's very great and many faults, yet we know enough to convince us that his great merits have been almost entirely overlooked.

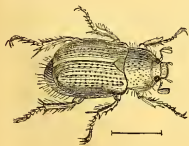
PHENOMENA OF THE SEASON.—We now are arrived to the consideration of the pistil, or maternal portion, of the flowers blooming at this season so abundantly around us. A pistil is usually composed of the stigma, the part at, or near, the point, to which the pollen must be applied to fertilize the seed; the style, usually very long, but sometimes absent, supporting the stigma; and the ovary, or embryo seed-vessel. The accompanying drawing of a section of the pistil of the whortleberry (*Vaccinium myrtillus*) will give a correct idea of a customary arrangement of its parts. The ovary, *a*, of this flower is wrapped over by the leafy portion of the flower itself, which is seen to rise beyond it at *b*. The centre of the ovary is occupied by a thick fleshy placenta, or seed, cord, to which the ovules or embryo seeds are attached, and through the vessels of which placenta the sap is conveyed requisite for sustaining the growth of the seeds. There is no doubt that the stigma is the organ for rendering the seed fertile; it is always in perfection at the same time that the pollen is shed, and is as invariably viscid, or clammy, so that the pollen adheres to it, and immediately bursts. The pany is a stigma gaping only when the pollen is ripe; and the Jacobean lily (*Anagallis foemina*) is described by Linnaeus as having a liquid

drop protruding every morning from its stigma, which is absorbed during the afternoon turbid with the pollen which has fallen upon it. In the *saxifraga*, the stamens bend one or two at a time over the stigma, and having shed their pollen, retire to make way for others. In the *cockscorn*, the stamens retire during wet weather beneath the shelter of the concave petals, but in dry weather they advance and scatter their pollen over the stigma. In the *barberry*, the stamens are similarly bent back under the petals, but if their filaments are tied by the foot of an insect, or the application of a hair, they spring forward, and dash their pollen against the pistil. Pages might be filled by a detail of contrivances for bringing the pollen to the stigma, but we have quoted a sufficient number to demonstrate "that system of wise provisions, having for their object and consummation the production of seeds." It is upon the number and other circumstances connected with the pistil that Linnaeus founded the Orders, or first great subdivisions, of his Botanical System.

INSECTS.—In June and July, a small pretty beetle very often may be found among the petals of white roses. It is scarcely half an inch long, and rather less than a quarter of an inch broad. Its wing-cases are reddish brown, shining, and shorter than the body; the body



a, the ovary; *b*, the calyx; *c*, the disk, from which the petals grow; *d*, the placenta; *e*, the ovules (embryo seeds); *f*, the style; *g*, the stigma.



and head are dark green, and the antennae reddish, having at their ends a dark green club. This is the garden beetle (*Phyllotreta horticola*, and *Melolontha horticola* of some); it feeds on the leaves of apples, pears and roses, gnawing them full of small holes, and even transferring its attacks to the young fruit of the apple. During the latter part of July the female retires into the earth for the purpose of

there depositing her eggs, from which the grubs speedily are produced, and feed upon the roots of plants. The only mode of reducing the number of these beetles is by searching for them during the evening, when, if detected, they stiffen their outstretched legs, and feign death; but in the day they fly about swiftly, and are captured with great difficulty.

HAVING before us more than one application for dissertations on the commonest operations of gardening, we shall comply with the request, commencing with DIGGING, fully aware in doing so that we have nothing new to offer for the consideration of the experienced practitioner, yet agreeing in opinion with

one of the applicants, that "each operation will offer much suggestive observation suitable and beneficial for amateurs yet in their apprenticeship."

It is worthy of remark, that digging, the fundamental operation of all gardening, is almost the last to be improved and well performed even in countries

where the art of cultivating the soil is favoured and advancing. In Bengal the soil is stirred no deeper than can be effected by means of a short-handled heavy kodali, or hoe; in China the surface is merely scarified; and in Ireland, among the peasantry, a piece of clean, neat digging, with their long-handled, narrow-bladed spade, can be very rarely distinguished. It is not so with other gardening operations: sowing, hoeing, and manuring, for example, are much better performed in all the countries we have named. It may be that, digging being a very laborious operation, and the more laborious just in proportion to its being well done, disinclination to exertion is the prime cause of its imperfect performance. Be this as it may, it is quite certain that digging is the most laborious operation connected with the gardener's art; and yet, as we have observed on a former occasion, very few people ever consider in detail the expenditure of labour required from the gardener when digging: it is a labour above all others calling into exercise the muscles of the human frame, and how great is the amount of this exercise may be estimated from the following facts:—

In digging a square perch of ground in spits of the usual dimensions (seven inches by eight inches), the spade has to be thrust in 700 times; and as each spadeful of earth, if the spade penetrates nine inches, as it ought to do, will weigh on the average full seventeen pounds, 11,900 pounds of earth have to be lifted, and the customary pay for doing this is two-pence halfpenny. As there are 100 perches or rods in an acre, in digging the latter measure of ground the garden labourer has to cut out 112,000 spadefuls of earth, weighing in the aggregate 17,000 cwt., or 850 tons, and during the work he moves over a distance of fourteen miles. As the spade weighs between eight and nine pounds, he has to lift, in fact, during the work, half as much more weight than that above specified, or 1278 tons. An able-bodied labourer can dig ten square perches a day, or even more if the soil be light, and sufficiently moist to cling well together. But we shall observe more upon this ere we conclude.

Before giving any practical directions for the best mode of digging, let us consider what are its objects. These are, to loosen the soil so that the roots of the crop which is to be grown upon it may easily penetrate that soil, and find food for sustaining the growth of the plants; consequently the deeper a root naturally strikes, the deeper should the soil be dug; and as roots always travel in the direction where the best food is to be found, manure should be buried deep in digging ground for carrots and other tap-rooted vegetables, but should be kept near the surface in digging the ground for dwarf kidney beans, and other crops having fibrous roots.

Decaying vegetable and animal matters are not the only food required to be presented to roots for

the well-being of the plants to which they belong. These roots require the presence also of the gases of our atmosphere, and moisture. This explains why, in digging, it is found most advantageous to cut small spadefuls at a time, thus facilitating the pulverizing of the soil; for, just in proportion to its clods being broken down fine, can the air and its moisture penetrate deeply within it. By moisture, we do not intend only the rain and the dew, but the moisture always present dissolved in the air of our atmosphere. A provision of its Creator, of which even our restricted powers can readily perceive the wisdom and the beneficence, is that the air contains more moisture in hot weather than in cold, a fact we must have all observed by the dew deposited upon cold wine-glasses when brought into a warm room. Now, all soil is gifted with the power of absorbing that moisture from the air; and every one conversant with a garden must have noticed how refreshed plants are by having the earth stirred round about them, a refreshment arising chiefly from the air being thus enabled to penetrate better to the soil near their roots, and thus for that soil to attract from it its moisture. That well-pulverized soil does attract moisture more powerfully than hard cloddy soil is not known either from reasoning or from garden practice alone, but has been demonstrated also in the laboratory of the chemist. Professor Schluber ascertained that 1000 grains of stiff clay absorbed, in twenty-four hours, only thirty-six grains of moisture from the air, whilst a loose garden soil absorbed in the same period of time forty-five grains; and magnesia, a still more finely divided body, absorbed seventy-six grains.

Then, again, pulverizing the soil enables it to retain the moisture absorbed better. This we demonstrated some years since, and the reason is obviously because a hard soil becomes heated by the sun's rays much more rapidly than one with a loosened texture. The latter is better permeated by the air, which is one of the worst conductors of heat. Mr. Barnes is quite of the same opinion, for he says, "I do not agree with those who tell us one good weeding is worth two hoeings; I say, never weed any crop in which a hoe can be got between the plants; not so much for the sake of destroying weeds and vermin, which must necessarily be the case if hoeing be done well, as for increasing the porosity of the soil, to allow the water and air to penetrate freely through it. I am well convinced, by long and close practice, that oftentimes there is more benefit derived by crops from keeping them well hoed, than there is from the manure applied. Weeds or no weeds, still I keep stirring the soil; well knowing, from practice, the very beneficial effect which it has."

We have said that the depth to which soil should be dug, and where the food afforded them by manure

is deposited, should be regulated by the length of the root of the plant to be cultivated, and the justness of this will be appreciated from the facts, that in deep, poor, siliceous soils we have traced the roots of trees from twelve to fourteen feet perpendicular without reaching their termination; those of the Canada thistle to seven feet; common fern to eight feet; wheat, thirty inches; oats, twenty-four inches; potatoes, eighteen inches; onions, twenty inches; carrots, parsnips, and beet, two feet. An extensive strawberry cultivator also tells us that he trenches his beds three feet deep, and has found the roots of the British Queen go down the entire depth.

The subject grows upon us, but we will conclude our observations in a future Number.

IN our next number, without any increase of price, we shall commence our promised permanent adoption of sixteen pages instead of twelve pages, as at present. The STOVE department has been entrusted to one of our most skilful gardeners, and we hope that he will begin his essays at the same time.

THE FRUIT-GARDEN.

THE IMPORTANCE OF LIGHT TO FRUIT-TREES.—The beneficial influence of a free admission of light to all parts of a fruit-tree are mostly admitted in the aggregate, but still not justly appreciated in the detail. It has become quite fashionable, during the last twenty years, to talk of the vast influence which this element has over vegetation, yet we still find gardens—the majority we fear—in which, during the prime of summer, the fruit-trees are smothered with young spray, and that, too, at the very period when solar light, acting freely on the leaves of those portions of the tree considered permanent, is indeed alone beneficial. At the close of the year everybody begins to think of pruning, at least as soon as the leaf has fallen; and then, when light is no longer of service, every pains will be taken to remove useless spray, and to prepare for another smothering or choking course, which the absence of summer pruning is sure to produce. Now, why is such a course pursued? A niggardly economy, we doubt not, will be found to lie at the bottom of the whole affair as to many persons, who, not having either time or inclination themselves to perform these operations, are yet able to employ a person to do it for them. We have, in our day, repeatedly known a whole garden of trained fruit-trees completely spoiled as to the prospect of well organized buds for the ensuing crop, or of a fruitful habit in ensuing years, through a fortnight's neglect during the months of June and July. Only let this be duly considered, and it will at once be seen where the error lies. A fortnight's labour in this respect need only cost the amateur, or persons living at ease (with a nice little garden, containing, in general, a little of everything which is truly good in the horticultural way), about the sum of two pounds maximum; and we should be glad to know who would thus wish to render nugatory the efforts of preceding seasons? Nor is this

all: the prospective profit and loss must be taken into consideration. Many gardens of this calibre have a nice wall or paling around them, and contain, perhaps, nearly an acre of ground set out in lines of fruit-trees, marginal espaliers, trees under a dwarfing system, together with rows of useful bush fruit. Now, if there be any truth in the principle which we must endeavour constantly to keep before our readers, *viz., that light is the prime agent in producing fruitful habits*, where can be the gain in such a garden, provided we can prove that *every tree in it is suffering every day, for many weeks*, through the deprivation of this wondrous element? Surely forty shillings would be well expended in this way, taking a mere profit and loss view of the affair.

There is another point, however, equally important, in which to view this sad matter. We all know with what ardour a new garden is first enclosed, especially by one who never enjoyed the luxury—for such we must term it, and such it is, unless engaged through the medium of a merely mercenary spirit. Mighty prospects seem in store, when the proprietor, availing himself of the advanced knowledge of the times he lives in, follows principles instead of mere traditional rule. First-rate gardeners, perhaps, are consulted; trenching, the providing against pernicious subsoils, thorough drainage, &c., are had recourse to—all tolerably expensive processes, and full of promise. Valuable kinds of fruit-trees, of course, are purchased of the nurseryman, and some other expenses incurred in providing composts, mulchings, labels, &c. Surely, after all these preparations, a systematic mode of procedure should be followed up, and by no means be frustrated in the very prime of the season (when every glimpse of sunshine produces its corresponding amount of effect on fruit-trees) for the sake of a few days' labour.

We shall not offer any excuse for thus endeavouring to throw light on a subject hitherto somewhat obscured. Of course we do not suppose that all are thus circumstanced—we know many who form honourable exceptions. We have, however, said this much in order to prove that labour at proper periods, rightly directed, will assuredly repay the necessary cost; and to assist the proprietor of a little garden in "rightly directing" such labour is a province which THE COTTAGE GARDENER delights in, being at once its duty and its interest. The earlier portion of July should be occupied in a very close examination of all fruit-trees, especially fancy or trained kinds; and much of the waste shoots trimmed away, or, in cases of doubt, pinched back.

THE RASPBERRY.—Some of the suckers will by this period have become very luxuriant, and some show a disposition to branch laterally: the latter, notwithstanding their strength, are not such good bearers in the ensuing year as those of a medium character. When there is sufficient of the good suckers to any given stool, these rampant ones had better be cut down to the ground, for drawing them away by the root will disturb the other roots in their neighbourhood too much. Those not yet branched, and which are overtopping their stakes, may have the point pinched off in a fortnight or so.

DOUBLE-BEARING OR AUTUMN RASPBERRIES.—The true bearing suckers will soon be manifest by the blossom-buds appearing. As soon as these can be distinguished the barren ones may be drawn away or cut down—this operation may in general be carried out by the latter end of July. They should by all means be watered in dry weather; indeed, a little *liquid manure* would be of immense benefit,

and a coating of mulch or top-dressing should be immediately applied, if not already done.

STRAWBERRIES.—We advise all those who like full crops of fine fruit to look out betimes for runners, for, unless they are obtained early, full justice cannot be done to runner cultivation. We make a point of spreading some half-rotten leaf-soil beneath those plants from which we desire to propagate: the early runners lay hold of this betimes. It is a very good plan to take a basket of stones early in July, and lay one on each of the forward runners not yet rooted; they will thus speedily attach themselves. Frequent waterings are necessary in order to obtain good early runners, and ground should be looked out and prepared to receive them. We seize on any open spot, *totally unshaded*, and fork in some *very rotten* manure about six inches deep. In such a situation we plant them out at about nine inches square apart, for we remove ours with a trowel or small spade, in the end of October, to their final destination in rows. Let it, however, be understood that this is in consequence of a severe course of cropping, for the plot intended for their reception, finally, is seldom at liberty early enough. We grow some in beds, and these of course we prepare for their final reception at this period, planting four rows in a four feet bed, the two outer rows being six inches from each outside, and the rows of course one foot apart—the plants being ten inches apart in the rows. This is, perhaps, as good a plan for the possessors of very small gardens as any other. We cannot say that we fancy any very great economy of space by making strawberry edgings; they cannot well receive a systematic course of culture in this position, and they are always making inroads on any other plant or crop which may be contiguous to them. We will return to strawberry culture shortly; we have not space at present, and very much remains to be said.

ALPINE STRAWBERRIES.—Let all runners be cut clean away, and the plants receive liberal waterings, using liquid manure occasionally. It will be well to lay slates or tiles beneath them shortly; and, before doing this, it is a good plan to raise a slight mound of soil around each plant, sloping away from the plant outwards. This forms a slight incline, which keeps the fruit dry during bad weather in the autumn. A sharp look out must be kept with these, and all other strawberries, in order to keep down mice, which are apt to make sad havoc.

GOOSEBERRIES.—The aphides are a great pest to the young shoots of the gooseberry; and at this season, if they are much infested, it is good policy to cut off all the infested points, and to burn them. This should be done very early in July, in order that the second growth, which they are almost sure to make, may become matured. Those who can find time will do well to give them a watering of liquid manure immediately afterwards.

RED AND WHITE CURRANTS.—We hope that our advice has been taken in dubbing away a portion of all the watery growths; if not, let it be done directly. As before observed, do not strip it away in order to let the sun shine on the fruit—this is an erroneous notion. By dubbing off about one-third of the points, however, a glimmering of the solar rays will reach the fruit, which will be highly beneficial. If the aphides infest any young bushes, off with the points, as with the gooseberries, and burn them.

BLACK CURRANTS.—Let us beg for one more thorough watering, the moment they change for ripen-

ing: this will impart much size to the fruit. If any odd littersy mulch lays about, for which no particular purpose exists, lay it over their roots.

PLUMS.—These are probably infested with aphides. When they are very much injured in this way the tops should be cut away, as in the case of the gooseberries and the currants. Let the breast shoots be regulated, trained, thinned, topped, &c., according to the general principles of disbudbing before laid down.

PEARS.—Persist in "stopping," or, in some cases, cutting away all superfluous shoots. In doing so at this period, form a determination to open out every portion of the tree to a glimmering of sunlight. On south walls a little more shading must be permitted: such is beneficial. It must be borne in mind, nevertheless, that this thinning or stopping is not in order to throw sunshine on the fruit, but on the embryo fruit spurs, in order that they may be well perfected for another year, and that a fruitful haul in general may be induced.

APRICOTS.—A good soaking of liquid manure is of much benefit, just before the last swelling, to all trees carrying good crops. It will be found to impart much size to the fruit, and renewed vigour to the spurs of the future crop. R. ERRINGTON.

THE FLOWER-GARDEN.

THE ROCKERY.—This term includes the *Alpiny*, a place for Alpine plants, and the *Fernery*, a place for such ferns as grow on mountains, rocks, and the clefts of old walls. In some of the earlier numbers of *THE COTTAGE GARDENER*, we described pretty fully the situation and the mode of forming a pile of stones, &c., so as to be a suitable habitation for these low-growing, truly elegant plants. We hope a goodly number of our readers have profited by our hints, and secured to themselves, in their gardens, however small, this source of innocent pleasure. To those who have done so, we now say, take care of your plants so placed. A considerable number of them flower early in the season, and, consequently, will now be out of bloom. Cut off the old flower-stalks, and trim the shoots so as to make nice tufts.

Propagation by Division.—Should you wish to increase any of them, take them up carefully with a garden-trowel, and divide each tuft into such parts as will form plants; pot them into suitable sized pots, in a compost of sandy peat and loam, well drained; place them on the north side of a low wall, or hedge, upon a layer of coal-ashes; give a gentle watering, and repeat it when necessary. They will require no further care, excepting weeding, and keeping a strict look out for slugs, and destroying them when found.

By Cuttings.—Some rock plants have long tap-roots, and will not divide. To increase such, you must resort to cuttings. Take them off with four or five leaves to each cutting. Choose a similar spot to that where you place the divided plants. Procure some sand, and after digging and raking the border place upon it an inch in depth of this sand; insert into it the cuttings, and place a hand-glass over them; let it remain over them till they begin to grow, then tilt it up on one side every day for a month, and, if the cuttings still appear to grow, remove the hand-glass away. A fortnight afterwards you may take up the cuttings, and treat them the same as the plants increased by division.

The plants that remain on the rockwork will

require, during dry weather, sprinkling with water every evening: this will keep them fresh and growing, and will encourage such as have yet to flower to do so healthily and freely. This watering will cause weeds to spring up; pluck them away as soon as they appear. To keep the plants on a rockery in good and neat order, care and attention is necessary. Some of these plants grow and spread rapidly, and if not watched and kept within bounds by pruning, will soon run over and destroy their more slow-growing neighbours. Now, it may be desirable to allow some species to grow with all luxuriance: in that case it will be necessary to transplant the close-growing species into a part of the rockery at a safe distance from their aggrandizing fellows, and thus allow such rapidly spreading kinds to display their beauty. Other kinds of Alpine plants have creeping roots running underground: these, however pretty they may be, ought not to be planted in such a place at all. Too many persons that form and plant rock-work neglect this point. Two or three, or even one, creeping-rooted species will, if planted amongst the rest, soon run over the whole space, and render it not only unsightly but positively a nuisance. Supposing, by way of illustration, that our common coltsfoot was a scarce new plant from the Alpine regions, and a collector sees it in flower early in April: its bright golden blossoms charm him; he purchases it, brings it home, and plants it amongst his Alpine favourites. Those flowers that had tempted him to purchase it soon vanish, broad leaves spring up, the plant thrives with great luxuriance, the owner is delighted to see it thriving, but does not observe the aggrandizing qualities of his favourite until it has spread abroad its creeping insidious roots amongst the unsuspecting content-with-their-station neighbours, and the following spring rises up like a haughty usurper, to crush and starve all to death that have a home near it. Such plants, the moment their creeping propensities are discovered, must be rooted out unsparingly.

FERNS on the rockwork will now be in full luxuriance, and will be greatly benefitted by frequent sprinklings of water, either with the watering pot or the syringe. A covering of living moss over their roots will keep them cool and moist, and cause them to push forth vigorously their beautiful fronds.

RHODODENDRONS, GHEAT AZALEAS, AND OTHER AMERICAN PLANTS.—These beautiful ornaments of the flower-garden will now be making their annual growth. The forming of flower buds must take place this season, or there will be no flowers next year. Should the summer prove a dry one, and no care taken to keep the plants growing healthily and strongly, they will droop in the sun, make puny shoots, and few and small, if any, flower buds. In such a case the industrious cultivator applies the element the clouds withhold: he waters freely these favourite shrubs every evening. They will soon, by their recovered health and luxuriance, show forth their grateful sense of his liberality and industry. There is no operation in gardening that displays such immediate beneficial effects as the application of water to plants drooping with drought after a hot sunny day. The good of this operation, however, may be considerably enhanced by covering the surface of the soil around these plants with some rubbish that is a bad conductor of heat. Round fruit-bearing plants short littery dung is the best, because that, every time water is applied, either by the hand or from the clouds, the enriching qualities of the manure are carried down to the roots; but, in

the case of ornamental shrubs in well-kept flower-gardens, littery dung would be unsightly, and so some other substance of the same quality as a non-conductor of heat, and consequent retainer of moisture, must be sought for. This article we have mentioned before, when writing about the formation and planting of the "American bed," and also just above in the case of "ferns." The substance we allude to is *living green moss*. Cover the roots of rhododendrons, &c., with this, and they will not require half the amount of water, as without it they undoubtedly would, to keep them growing satisfactorily.

LAYERS OF AMERICAN PLANTS AND HARDY HEATHS.—Water these also in dry weather, and cover the earth with the same article of friendly protection: It will cause them to throw out roots more freely and much more quickly.

LILIU LANCIFOLIUM (Lance-leaved lily) and its varieties, *Album* (white), and *Speciosum* (showy).—We have great pleasure in announcing to our readers and correspondents that these truly magnificent flowers are perfectly hardy, at least in the neighbourhood of London. They have stood the weather of two winters in a border facing the east, at Messrs. Hendersons, Pine-apple-place, and at Messrs. Lee, Hammersmith, and no doubt at other nurseries. We noticed those plants a few days ago, and were delighted to observe the healthy appearance they made. We have, then, another grand addition to the many beauteous flowers to grace and ornament our flower borders; and, as the price of them is becoming more moderate every year, we may hope to see them in every cottage garden, even as commonly as their equally noble compeers, the white, orange, and tiger-spotted species.

CULTURE.—The tribe of lilies all require a rich deep soil and open situation. The bulbs should be planted, in such a soil and situation, rather deep; that is, the crowns of each bulb should be covered at least three inches deep. Several sorts throw out roots from the flower stalk not only level with the surface but frequently above it. As soon as these are perceived lay upon the surface some well-decayed cow-dung, covering it with some fine soil to hide its unsightly appearance. If lilies are allowed to grow for several years on the same spot, the soil, even with the above additions, will become exhausted, the bulbs will grow less instead of larger, and, as a matter of course, will produce fewer and smaller flowers. We remember once taking charge of an old garden where the lilies were in that condition. We had them all taken up towards the end of September, the border trenched as deeply as possible, for the clay prevented us digging so deeply as we could have wished. The border was then manured pretty freely with rotten leaves; holes were then dug where the lilies were to be planted; into each hole a good spadeful of very rotten dung was thrown; and this was then thoroughly mixed with the soil at the bottom of the holes: this brought it up to within three inches of the level. The roots, two or three in each hole, were then immediately planted, and covered up with the soil that had been laid on one side: this finished the operation. The good effects of this management were visible even the following year. The leaves put on a dark healthy green, the bulbs increased in size, as also did the flowers. But the best results were to be seen the second year; they were then in the flowering really grand. Many of the white lilies reached the height of five or six feet, and some

of them had as many as six or eight flowers on a stem. They were the admiration of every one that saw them. If any of our readers have clumps of those flowers in such a state as the above-described were previously to replanting, we advise them to adopt the same method. Mind one point, however, viz., to have the roots as short a time out of the ground as possible.

FLORISTS' FLOWERS.

THE ROSE.—Now is the very best time to bud roses. At page 224, vol. i., we gave instructions (with wood-cut illustrations) how to perform this very pleasing operation. Have your knives well sharpened, your bass mat, or cotton, or worsted twine, or slips of Indian rubber, whichever may be most convenient, all in readiness. The last is considered the best for tying in buds. Then read over attentively the above referred to instructions, and follow them as nearly as possible.

ROSE SHOOTS to be layered should, as they advance in growth, be bent down to the ground, and kept there by hooked pegs. This year's shoots are the best to be layered. This is the first part of layering roses. After the shoots are all pegged down, leave them so for a time, it being too early as yet to tongue them, and cover with soil. Great numbers of roses will now be in flower, delighting the senses with their beauty and fragrance. Look to your standards, and see that the ties are not too tight. Crush the rose caterpillar daily, and wash the aphides with strong tobacco water to destroy them. T. ARPLEBY.

GREENHOUSE AND WINDOW GARDENING.

ROSES IN POTS.—The next division of our subject is *climbing roses* in pots. The fact of the yellow Banksian rose being exhibited last May, as noticed in our supplement, opens up a wide field for our ingenuity, and now there can be little doubt but all our summer climbing roses may be so treated as to form large bushes for pot culture, either on their own roots or worked close to the ground on free growing stocks, such as the common dog rose, or, indeed, on any strong variety of their own order or section. Some years since I made many experiments to see which were the best kinds of roses to work others on for forcing, and out of a great number I found the Purple Boursault the most willing to make fresh roots when introduced into moderate bottom heat, and all the roses that I tried seemed to do very well on this stock. I then thought that I could get rid of a tiresome habit which this rose has of throwing up a profusion of suckers from the collar, by first picking out the bottom buds on the cuttings, only leaving two or three at the top, and making the cuttings into six inch lengths, four inches of which were buried in the soil; and when they were well rooted, say at the end of the first season, they were transplanted into nursery rows, but much more shallow this time, so that I had three inches of clear stem to bud on below the two or three shoots which formed the head. Now, I was well satisfied that no suckers could ever proceed from the disbudged portion of the stock, as it is now proved beyond a doubt that, if we properly disbud a shoot which is not more than one year old, it is incapable of forming other buds on that part; but, if the buds are not extracted till the shoot is two years old, no art can prevent them afterwards from pushing

out what we call latent or incipient buds. This is an extremely curious point in vegetable physiology, which no one, as far as my reading goes, has explained scientifically; but the fact is so, and some of these days I may state how it has been finally proved, and also how it bears on some singular experiments which I mean soon to propose.

But to our rose stock experiment. For the first three years my roses worked thus on the Boursault promised remarkably well, and then I recommended the general use of this stock for forcing roses, seeing that it was the freest one I met with for making fresh roots, and thus to keep in advance of the head while under forcing—gardeners putting much stress on this part of their business. Indeed it is the chief reason why bottom heat is so essential for many plants, and also why watering with lukewarm water is so beneficial, by raising the temperature of the soil about the roots.

Mr. Rivers, the great rose grower, published an objection to my plan of using this stock in preference to the dog-rose; I believe chiefly owing to its propensity for suckers. He was right, and the best apology I can offer for not acknowledging him to be so at the time, is to state candidly that I have since been fairly beaten by my pet stock, for as soon as the roots arrive at a certain age they spawn like a raspberry bush, and no amount of perseverance will keep them down in pots; and when they are in the open ground, you may as well lock the stable after the horses are stolen as to think of keeping these troublesome suckers within bounds. Many writers have recommended the use of the Boursault for stocks, some of them probably on my own authority, but as we are never too old to acknowledge unavoidable errors at least, and as I have now made the *amende honorable*, I could wish that others would extend its circulation.

Among other things I learned during this rose-stock experiment was that every stock I used could be forced to flower early as well as any other rose, and this Boursault among the rest; and, what is not the case with many roses, they chiefly maintain their true colours under forcing. Another one, called *Laure Davoust*, of the section called *multiflora*, does so likewise. I never saw a more beautiful forced rose than this; the colour is between a lilac and French white; the individual flowers not much bigger than "bachelor's buttons," and like so many double *raumeuhuses* in miniature; but they are produced in bunches of from 20 to 40 each, and as the older flowers take a different tint from the others, and both sets vary in colour from that of those in bud, one of these bunches makes a complete bouquet of itself; and the individual flowers, when well assorted as to the shades, are inconceivably pretty ornaments for the hair, either as three or four little bunches or formed into wreaths.

The only other rose that I know of which comes near to *Laure Davoust*, in small flowers of different shades of colour in large trusses, is the old Grevillii, or "Seven Sisters" rose, and one that might be used in the same way. Next to them is the rambunctious rose, called *Myrianthes renoude*, a strong growing climber, with small blush-white flowers edged with pink; and *Felicite perpetuelle*, also with small flowers of a light creamy tint, and a strong habit of growth. The two last and *Laure Davoust* I have repeatedly flowered early in the spring in very small pots, having had them slightly forced to use for stocks; and whenever they showed a disposition to ramble away as climbers do, I had to pinch them back to keep them from

taking up too much room. Therefore, although I never attempted to cultivate climbing roses as low bushes in pots, I can easily understand how the *Yellow Banksian*, already referred to, was brought to such a manageable condition as, to my own knowledge, called forth loud praises from many good judges of such things at the May exhibition of the Horticultural Society.

I have no doubt whatever but all our climbing roses may be so treated successfully. There is hardly any occasion to bud them on other stocks for this purpose, but merely taking cuttings of them and making them in the proper way; that is, to cut strong pieces of the young shoots into lengths of five or six inches, cutting right under a joint and picking out all the bottom eyes, leaving a couple, or at most only three, at the top, which will do away with their usual habit of shooting up from the collar or bottom, where the roots issue from. It will not suffice to slice off these buds level with the bark, for their connexion with the shoot is analogous to *rooting into the bark*; therefore, to do the thing effectually, we must notch them out by cutting through the bark and part of the young wood immediately before and behind each bud, so as to have a small portion of the bark and young wood removed with them, or, in gardening language, to root them out. The small notches thus made in the shoot will soon heal over, and be as smooth as any other part. Any time from the middle of September to the end of October is the best season for making these kinds of cuttings. They will grow anywhere in the garden, either in full exposure to the sun or in the shade. The soil for them, however, should be well loosened; and if stiff, a little sand put under the cuttings would facilitate the rooting; they may be put in either by means of a dibber or in the trenches as the ground is being dug. In either way the rule is that they be so firm as that you could not pull them up without a good effort. If you can draw them easily they are so loose that the air will get to the cut end and dry it so that no roots can be made. They should remain in the cutting place just twelve months; and, after midsummer, when they begin to grow away freely, some weak manure water would encourage them a good deal; but, unless you are chemist enough to know the right proportion, have nothing to do with that stuff called *guano*: let the farmers have it for their turnips. We have all heard of catching birds by putting salt on their tails, and this new stuff called *guano*, which we buy in small parcels, is nothing else but a mixture of coloured salts for catching innocent birds with. There seems to be a "charm" in salt, for it was only the other day that I read of how they catch the wild deer in Jenny Lind's country, by enticing them off their guard with handfuls of common salt, which they carry to the hills on purpose.

At the end of the first season, or say by the end of October, these rose cuttings must be taken up, even if they had room enough to grow on during another year, for by the time they are well rooted the bottom portion of them which was so much buried will require to be relieved and brought to the light and air. You will find that many of them have rooted from the notches where the buds were taken out; all these roots must be cut off, and only those from the lowest end of the cutting be retained, and those of them that are strong must now be cut into four or five inches. The roots of all roses intended for pots are cut shorter than for open ground culture. When one is impatient to see the issue of an experiment, some of the strongest of these plants might be potted

at once, but nothing is gained by so much hurry, and they will answer all the better if they have one more season in nursery rows. Throughout this second season they require particular attention to pruning, or rather stopping and training. You are not to allow them to ramble away in long shoots, as if they were to retain their natural habit; and as it is essential that they should be well furnished with bottom shoots to begin with like dwarf roses, I would recommend that during the growing season no shoot be allowed more than three joints at a time, and then to be stopped by pinching off the very point. This will cause other shoots to rise from the three buds, and these, in their turn, are to be stopped also, and so on till the end of August. It will sometimes happen, however, that some very weak shoots are produced under this treatment. When that happens, it is best to let them grow on till they are nine or ten inches long, by which means they will gain sufficient strength for flowering.

Another point in their progress will also require attention and some little judgment. If they are very vigorous, and, in the height of the growing season, persist in making shoots from all the eyes after stopping, they would soon get too crowded, and by thus obstructing the light and air from the middle defeat our object; therefore we must thin out, that is, cut away the very strongest and the weakest shoots to give full room to those in an intermediate state, which answer best.

Now, at first sight, it seems odd to stop a shoot in order to compel it to produce more shoots than are really wanted, but we all know how very difficult it is, and what restraints are necessary, to overcome natural habits, which is the main point we have in view in this instance, and the more sure we lay the foundation the more safely the superstructure can afterwards be reared. As surely, therefore, as we neglect "short stopping"—as gardeners call this system of pruning—at every two or three joints at the beginning, so surely will the future plant exhibit long bare branches, or, as we term it, "look bony," always a sure sign either of bad management or of some mishap having befallen the plant at an early age.

By the end of the second year from the cuttings being made, these plants thus treated would be in full condition for first potting, and this would be the proper age to buy them from the nurserymen for the same purpose; but no nurseryman could rear them so effectually as above unless he charged about three times the usual price for them: he cannot, even at the usual rate, afford the time to pick out the buds from his cuttings except of such as he intends for his own use. Nevertheless, if we choose to put up with the future annoyance of suckers, and a few rough bony shoots here and there, we may buy one-year-old plants of these climbing roses at sixpence a piece, taking them by the long dozen: for I see in many of their useful catalogues they offer them at 30s the hundred.

After potting, the usual treatment of pot roses will do for them, only that we must never neglect to keep down their climbing habit by close stopping during the growing season. A few years of this treatment will convert the freest climbing rose to the character of an ordinary bush, as was proved by the *Yellow Banksian* rose already referred to. There is a double white jasmine in our stoves, called *sambac*, remarkably sweet, and of a strong climbing habit, but I have managed it for years in pots, exactly as above; and after the third or fourth season there is no more trouble to keep it within bounds than any other free-

growing bush. As another instance, what is more familiar than the Catalanian jasmine (*grandiflora*), a free climber, grown like little compact bushes, or as standards? and all this is brought about by close stopping while the plants are young. I could also cite many other instances of long rambling plants and climbers that have been so managed, and trained into useful specimens of bush culture; and, therefore, why not climbing roses? The Banksian roses, both the yellow and white, flower on the last year's wood, different from all other roses, therefore they must not be pruned late in the autumn or in winter, like other roses, for, if they are, that prevents their blooming altogether. Midsummer is the right time to prune them, just after they have done flowering; and very likely, on this account, they will be found to yield to pot culture easier than some other climbers, without being much cramped at the roots, as no doubt some others must be for the first few years.

D. BEATON.

THE KITCHEN-GARDEN.

Cauliflowers and Coleworts should, at this time of the year, be planted pretty liberally, so that a good supply of autumn vegetables may be secured, to take the place of beans and peas, in due season. Another good sowing, too, should be made of *cauliflowers*, and also of the small quick-growing kinds of *cabbage*, at the beginning of this month.

SURFACE MULCHING to beans, peas, kidney and scarlet runner beans, as well as to artichokes and other vegetables, will, if well attended to at this time, amply repay the cottager and gardener for the trouble of performing it. Should dry weather prevail, this operation will be most beneficial in preventing the earth's surface from becoming parched, crust-bound, and cracking into fissures. Much of the trouble and expense of watering, too, will be saved, as one liberal soaking to a mulched surface has a much more beneficial effect to growing crops than many waterings without a little previous mulching. Most growing crops, indeed, may, at this time of the year, be very greatly improved in quality and quantity, as well as prolonged in bearing, by mulching, and by the application of liberal soakings of liquid-manure, well drenched in with water. The late kinds of pea, particularly the Marrow, may be thus improved and prolonged to a great extent, and the operation of mulching is most assuredly, also the best preventive of mildew, that well-known pest so destructive and so generally prevalent with the late crops of peas. For many years past I have invariably observed that the mildew has been produced on peas and other kitchen vegetables, as well as flowering plants, through their having been suffered to become dry at bottom, or, I should rather say, through the earth they are growing in becoming dry underneath the roots, in consequence of the *surface only* having been moistened with showers, or by artificial means; and this effect is particularly visible after heavy fogs and dews.

WATERING.—As we have frequently observed, water should never be thrown over the foliage of plants and vegetables, particularly in dry weather, but liberal soakings to the roots should be applied so that the beneficial effects may extend to the most needful points. More injury is often done to crops in hot weather by light sprinklings, or the application of water in small quantities, than if they were left without any moisture at all; and the same rule

applies with regard to the application of liquid-manure, which, if given when needed only to the surface of the earth, and not well washed in with plenty of clear water, loses a great portion of its fertilizing qualities by atmospheric evaporation, and affords but little benefit to the crops to which it is applied.

ROUTINE MANAGEMENT.—The *potato onion* should now be bunched and hung up in an open, airy, shaded out-house to harvest, and the *autumn sown onions* will now require their stalks to be bent down. *Peppermint*, *balm*, *chamomile flowers*, *marjoram*, *horshound*, *wormwood*, and other herbs, should be gathered as soon as they become fit, that is, as soon as in full bloom, taking the opportunity of so doing in fine weather, and taking care to dry them gradually, to secure, as much as possible, their natural colour and properties. As soon as they are dried, they should be well secured in paper bags to protect them also from dust and damp.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 33.)

If the old saying is true that "when the broom flowers freely the harvest will be abundant," we may expect overflowing garners this season, for I never remember to have seen such rich and luxuriant bloom as in the month just passed away. Perhaps my floricultural sight has been quickened since THE COTTAGE GARDENER has aroused our energies, but certain it is that I never saw such bright and glowing clusters as this year decked the broom. Lovely as the furze had been, the broom fairly eclipsed her, and the grace and feathery form of its growth give it additional beauty. If any of my readers have travelled by the Brighton railway, they must surely have been struck by the large and picturesque patches of this beautiful plant which so thickly covered much of the wild and lovely country through which they passed, and actually hung in masses from the deep sandstone cliffs that overhang the "cuttings," thus proving that the broom will almost spring from the very rock. The effect of its rich golden wreaths clothing these steep and barren places was very delightful, and I think it might be introduced with great advantage in many situations of this kind which sometimes interfere with our ideas of beauty. Rocky and stony places might be very much beautified by a little attention to those plants which choose such situations, and of those the broom is one of the gayest and the loveliest. It may be called a "royal" plant, for it is said to have given its name to a line of British kings;^{*} and when we now delight in its beauty and fragrance, we may think of those troublous times of war and bloodshed which once was the portion of our now happy land, and rejoice in the peace and safety that shelters our English homes even more than their groves and orchards. Where would the cottage gardener find rest for himself or his cabbages if British law did not hedge them in? Let him, then, as he digs and plants, gratefully remember and submit himself to those wholesome restraints that protect his comforts and enjoyments, and in all things strive to maintain them in their purest and soundest form.

The broom would look beautiful dotted about a lawn; the white flowering variety is very elegant, and

* The Plantagenets, a name derived from *Planta genista*, the old botanists' title of the broom.

would form a pleasing contrast either singly or grouped with other shrubs. I do not think it is encouraged as much as it deserves to be; and our more simple gardens lose much interest and beauty from not possessing many "wild" plants that would be much admired if they were only brought thus into notice. The pink flowering thorn is a beautiful tree for the lawn or shrubbery, and I do not often see it. In cottage gardens, if placed in the hedge or where it would not take the room of a fruit-tree, it would have a lovely effect; the crimson flowering variety is rich and beautiful, and would group well with the pink and white flowering kinds.

During the early part of this month the double wallflower still may be increased by slips or cuttings of this year's growth, four or five inches long, if placed under a hand-glass. They are such rich flowers, and scent the air so agreeably, especially after rain, that we should cultivate them freely, and they are untiring in their bloom. Pinks and carnations must now be finished piping or layering, each of which operations are minutely described in every gardening book. These flowers are so lovely and so sweet that we should increase them as much as possible, particularly the clove carnation, without which the brightest nosegay is incomplete, and which is indeed a nosegay in itself.

Flower-stalks must now be supported if tall, and climbing plants also. There are often rough winds in July as well as June, especially about the longest day, that do much mischief, as the full foliage of trees and plants cause them to feel their power; and those likely to suffer should be strongly protected before that period arrives. The tall stems of the bright scarlet *Lychnis* are sadly disfigured by winds, unless prepared by being tied firmly to a stick. I have been frequently negligent in this matter, and have found my plants in terrible disorder after a boisterous night. I therefore recommend every lady to secure her plants as soon as possible, for I know how untidy and comfortless a garden looks when a summer gale has passed over it. There is something peculiarly scorching in a south-west wind, and gardens should, if possible, be screened from that quarter. I have seen the most luxuriant rose-trees almost ruined in a few hours by its blighting breath; their rich leaves turned brown and crisp, as if fire had passed over them, and much of their beauty gone. This might, in many situations, be prevented by a hedge or clump of trees and shrubs, which would break the force of the wind in a great measure; or, in forming a garden, we might so place it as that the house or a wall should interpose and screen it on the south-west side. Some little pains are well bestowed to improve, or, at least, protect our flowers, for if the beauty of the rose is injured how can we supply her place? In the days of our childhood "the rose was the glory of April and May;" it is still the glory of our gardens, though at a later season.

We should now keep our box edgings neatly trimmed, and our lawns mown as frequently as possible, that the turf may be short and velvety. I love the daisy, yet it does certainly destroy the effect of flowers when it blooms on the grass-plot, and they should therefore be often mown. The daisy, though we value it not, was once very highly prized. It was the favourite flower of one of our British queens, the unfortunate Margaret of Anjou; and was then chosen to decorate the hair, and was even worked upon the embroidered robe. Since that day it has sunk into insignificance, but it is still pleasing to us as the

first flower childhood possesses and rejoices in; and when we see it in the barrenness of the very early spring it always gives us pleasure. Its little history, too, is interesting, connected as it is with courtly scenes, and pagantry, and suffering. How deep a tale of sorrow it relates, and how loudly it teaches us that the path of royalty is not the path of peace. Let this simplest wild flower rouse in our hearts a doubly loyal spirit; and let the cottage gardeners strive to shield their monarch's steps from harm, by setting a bright example of quietness and contentment. If the peasantry are true to the crown, not one of its jewels shall fall out.

TO CORRESPONDENTS.

HYBRID HONEYSUCKLES (R. Tongue).—Your hybrids from a male of the trumpet honeysuckle fertilizing the pubescent honeysuckle have very handsome, brilliant, orange-scarlet flowers, with a bold foliage, but scentless. They are a very desirable addition to our shrubberies and borders.

THURSTON'S RELIANCE PEA (Tyro).—We never grew this variety, but we believe that it does not require any treatment differing from that desirable for other peas. Remove the spines from between the rows, and spread some mulch of long dung thickly over the roots of the peas upon the surface of the soil. This will preserve the moisture beneficially, as you say your soil is light and exposed, and you wish to grow the pods very fine. Liquid manure of sheep's dung once a week, after the pods are set, will aid you also. Larks are not injurious to wheat when in ear.

CARROTS (Victoria).—We cannot suggest anything for the improvement of these sown late, and in poor ground without manure. It would be useless to attempt to transplant them now with any prospect of success. If you merely want green food for your rabbits you may water your carrots once a week with weak liquid manure.

ROLLING POTATOES (Diagnosus).—It may be that the potato disease was checked, as you say, in a cottager's garden by rolling down the stems of the potatoes at this time of the year, for consolidating the earth about the tubers has been in several instances alleged to have such a preservative effect; it helps to exclude the air, and the more the air is excluded the better is putrefaction avoided. But we have no hope that such rolling is a specific against the disease. We believe that this is a consequence of unsuitable treatment during centuries, and that it will take many years of more rational cultivation and sowing to eradicate the disease.

FUSCIS, or SUE (A. B.).—When you want to save seeds of fuscias, or of many other plants, it is a good old rule to assist the plant to produce them, by dusting its own pollen on the stigmas. Imperfect, or want of impregnation, is often the cause of the seed, pods and berries falling off. See what Mr. Weston says on this subject last week.

DOES THE ELDER CAUSE BLIGHT? (T. Morgan).—We do not believe in the old doctrine that the elder or any other plant either causes blight or prevents it in a garden. If your elder-tree is a favourite let it alone, otherwise it is, by its roots, a great roller in a garden, being a powerful feeder. The simplest mode of getting rid of insects on common hardy bushes is to cut off the points of the shoots attacked, as Mr. Errington recommended for currants and gooseberries. It is only the tender points they seize on, and no common plant is injured by this "stoppping."

THE LEMON PLANT (Ibid.).—This (*Aloysia citrifolia*) will do much better planted out in a border near your door for summer use, and a slight dry covering will save it from frost. It is by no means a good pot-plant for summer, but excellent for the window in winter. The best way to manage it is to plant out of the pots at the end of May without disturbing the ball, to water occasionally through the umber, and to report late in September.

KLEINIA ARTICULATA (Ibid.).—This is as old as the hills, and is in London's Hortus Britannicus under the old name of *Coccolia*. It is a succulent of no great beauty. As a window plant it only requires a very small pot, very poor soil, and very little water in summer, and none hardly in winter.

CATERPILLARS ON ROSES (A. Parson's Wife).—We have now seen and found out the real habits of this little rascal, noticed in our answer to you at p. 166. It feeds solitary, and always on the upper side of the leaf, beginning at the point, scratching off the green part only, and never going to a fresh leaf till the whole of the first one is eaten off. It begins to feed late in the evening and continues eating till 8 or 9 o'clock next morning; resting for the rest of the day on the underside of the leaf, but still singly. Look, therefore, over the rose-bush late and early, and destroy the marauders one by one. They are easily seen and only one on a leaf, consequently hand-picking or crushing them is not a formidable job. They are very small, not more than a half-inch long, dullish white, with a dark brown head.

PEARS FALLING OFF (S. Cooke).—Your pear-tree blossoms well, has abundance of leaves, but the fruit, when about the size of a hazel nut, invariably turns black and falls off. "Whether your pear is a case of 'bad setting,' as gardeners term it, that is, deficient impregnation, or whether something is organically wrong in the system of the tree, we cannot precisely say. It would be very easy to speak a positive word on the subject, but so many anomalous subjects present themselves in fruit-gardening, that cases occur in which the most experienced and the most scientific feel bound to hesitate. As your tree has been planted 30 years it is quite probable the roots may

have penetrated an ungenial or actively prejudicial subsoil. To save loss of time by uncertain speculations we should plant another tree or two. If, however, you are determined to endeavour to save your favourite excavate in autumn so as to get at all tap-roots; cut them away, and have recourse to a good top-dressing, with the application of liquid manure, in order to obtain surface fibres. The latter operation may commence immediately. Try also, next year, dusting the stigma of the blossom with pollen from another pear-tree.

COMPOST FOR LILIUM LANCIPOLUM (Dianthus).—Your compost, composed as follows, is excellent for this flower:—Good hazel turfy loam, 6 parts; two or three year old, rotten, stable manure, 3; vegetable mould, 3; good peat, 3; silver sand, 1 part; mixed 10 months before using and frequently turned.

GUANO WATER (Ibid).—Your mode of making and applying this liquid manure, thus described, are both good:—In a vessel capable of holding nine gallons put two pounds of guano and eight gallons of water, let them stand 24 hours, frequently stirring the mixture; after letting it settle for an hour put it into another vessel holding nine gallons; then put eight gallons of fresh water into the first vessel, on the guano, for 24 hours. After settling mix these two almost clear infusions together for use.

VARIOUS LILIUMS AND GLADIOLI (Ibid).—Never give guano water to a liliun. *L. Japonicum* is hardy in England, and likes a peaty soil. *L. Venustum* we never heard of. *Eximium* is only another name for the old *L. longiflorum*, which is not quite hardy with us, but a slight protection will preserve it in a dry border. All the *gladioli* will live out of doors here, with a slight protection and a dry bed, and that is the easiest way to manage them. *Gladioli* showing flower buds in a greenhouse will receive no benefit by being planted out now. When the spring frosts are over is the time to plant them out of pots, and the end of October the best time to plant the dry bulbs in the open ground, and no rain should get at them all the winter, nor indeed till they are well up in the spring: if you manage that they will indeed reward you.

AGAPANTHUS UMBELLATUS (not carulea, J. M.).—This, which you describe as "just doubling itself," you must not divide until the end of March. When these flowers are once established they ought to flower every year. Give it abundance of water till the end of August, and keep it to the open air until frost approaches.

CHRISTMAS ROSE, &c. (Ibid).—This should be divided at the roots this month in a dormant state, and planted immediately. It will do in any soil that is not too stiff or over wet; but best in rich light loam, such as the borders of a good old kitchen garden. No winter flower deserves to be more grown than the Christmas rose. Part of your vegetable compost, when quite rotten, should be laid by under cover to come into use "on a wet day." If your *arum* has flowered and is turning yellow in the leaves, cease watering it, and let it get quite dry for three months in the meantime. If you want to increase it, shake the soil from it, and divide the small from the large fleshy tubers which compose the underground part. See what is said of them at p. 51. The *acacia* should stand out of doors till frosts threaten us, and be regularly watered.

PENTSTEMON PERFOLIATUM (Un Jeune homme).—By this we presume you mean *P. latigatum*, which in some old botanical works is called *Digitalis perfoliata glabra*. You will find its history in Loudon's Encyclopedia of plants under the name first mentioned. The little cruciferous plant you mention with yellow flowers is, perhaps, *Cheiranthus alpinus*. The rose you enclose is affected with "green centre," as gardeners call the transformation of the pistils into leaves. We never knew this example of morphology so prevalent as it is this year. Your other question shall be answered next week.

ROSES (Beginner).—Your flowers are affected with "green centre." See previous answer, and what Mr. Beaton says on the subject at p. 143-5.

AQUATIC PLANTS (—).—Mr. Appleby will write fully on their culture next week.

SKINS OF APHIDES (T. Morgan).—"The shelly looking insects with holes in their backs, adhering to the calyx, &c. of your rose," are only the skins of aphides, or green flies, killed by the grubs of parasitic Ichneumon flies. The swollen size of the skins arise from their distention to accommodate the growth of the parasite that fed upon their vitals. The hole is that by which the parasite made its exit. Your rose, we think, is the *Grand Tuscan*.

HYBRIDIZING (A Novice).—The pollen is required to be applied to no other part but the stigma. Your fragment of flower was too much bruised for us to speak certainly of its name: it is like *Cactus Jenkensonii*.

BEES (A Beginner).—You returned the second swarm to the parent hive the afternoon it came forth; since which the bees have slaughtered the drones, yet you heard the piping of the queen since, and after that found in front of the hive the bodies of two bees, darker and rather longer than the others.—If the piping continues they will swarm again, for it ceases only after the swarm has left, or the super-numerary queens are killed, which may easily be ascertained by seeing them dead on the ground under the hive. They were queens that you found in front of the hive, which is a certain indication that your bees will not swarm again. It is quite unnecessary to resort to fumigation in returning a swarm to its parent hive: live them in the usual manner; then, by a smart and sudden movement, shake the bees out of the hive upon a board, and place the board close to the parent hive, guiding, at the same time, a few bees to its entrance, and the remainder will speedily follow.

CATERPILLARS ON APPLE-TREES (A Lover of Gardening).—These small larvae found on the apple-leaves, enclosed in little portable cases, are most probably those of *Astyages nigricella*, which Mr. Walker has observed to feed on leaves of pear-trees. If they are not of this species they are of a closely allied species. We consider them in no wise answerable for the loss of the apple blossom. The larger of the two flies you caught devouring the smaller fly is one of the smaller species of *Empis*, perhaps *E. lessallata*. Your descrip-

tion of their habit is quite correct:—"I met with one that had evidently just caught another, and so intent was the larger one on the destruction of his captive that, though in general they are not easily caught, yet it suffered me to take them both up, and lay them on my hand. The efforts of the larger one seemed to be directed to pierce the smaller in the thorax, just at the back of the head; and, after a hard struggle, succeeded. When quite killed, the smaller one was borne off in triumph by the larger."

POTATOES (Devonshire-street).—Your crop is all right; leave it alone, except hoeing down the weeds, until the end of the present month, or until the tops begin to die off. Kidney potatoes are not full grown until then. If you want early potatoes next year, plant Walnut-leaved and Ash-leaved Kidneys.

PEAS (T. O. M.).—It is much too late for you to sow these in order to grow a crop to give the ripe produce away to your poor neighbours in winter. For that purpose you should sow in March, and the best kind you can cultivate is the *Charlton*.

FORM OF BEDS (J. W.).—Your labourer was quite wrong in digging deep alleys between your beds, unless the soil is heavy and badly drained. If it is, then it is not a bad plan.

POTATO SETS (Ibid).—You need not scoop all the eyes but two out of your whole sets. One or two of the strongest, if they are left to themselves, will take the lead and grow up to stems, the others not vegetating at all. Late experience has taught us in this and in many other instances, that we often thwart nature in our over anxiety to assist her. The "Farmer's Magazine" is published by Messrs. Rogerson, in Norfolk-street, Strand.

EARTHING UP POTATOES (Twig).—You are quite right in understanding that we do not earth up our potatoes, and for the reasons we assigned at p. 148. Of course we take care that the tubers nearest the surface are covered with earth about an inch deep. The name of your plant is *Oenothera lutea*.

MORELLO CRERIES AND APRICOTS FALLING (Little Tom).—You have examined the stones of these, and find them without kernels, and this probably explains the cause of your loss. The fruit had not been fertilized; this is one cause of all stone fruit falling, although we do not intend to lay it down as a rule that all that are unfertilized fall. There may be other causes in your case, the crops may not be sufficiently thinned, so that the supply of sap is not sufficient to keep pace with the growth of the fruit. We do translate the Latin names of plants as much as is possible. The glutinous matter you mention as being on the leaves of your cherries, &c., is called *Honey-dew*. It is a disease on which we shall probably say something next week.

INSECTS ON SCARLET RUNNERS (An Amateur, W. H. B.).—These are the aphides or green lice, peculiar to the plant, and called by entomologists *Aphis phaseoli*.

MIGNONETTE TURNED YELLOW (Ibid).—The mere fact of taking one plant from a window facing the west to another window having an eastern aspect could not have given that plant "almost immediately an autumnal yellow;" whilst the plant remaining in the western window continues green. There is something the matter with the root of the plant moved, or some difference in the amount of water and air given to it.

BLIGHTED DAMSON TREE (W. E. H.).—This blight upon plum trees has swept all over England. The deformity of the points of the shoots is caused by their being attacked early in the spring by the plum louse, *Aphis pruni*. The wounds inflicted by this aphid caused the growth to be deformed, and the sap to exude and decompose. The white insects (of which we find only the remains of one), seem to have been some kind of *Acarus*, or mite, a family of insects usually found where the putrefaction of vegetable matter is going on.

ROSE CULTURE (An Admirer). If you refer to p. 66 of the present volume you will see how you can best treat the soil, and for other directions please to refer to the index of our first volume. Horse droppings will make liquid manure, but you must put about half as much more as you would of sheep's dung to a gallon of water. If you mulch over the roots of the roses opening with difficulty, and then give a good soaking of water over the mulch, you will assist them effectually. On no account cultivate kidney beans or peas round the stems of your roses.

SOAP ASHES (F. S. B.).—You will find full particulars relative to these at p. 268 of our first volume.

ROSES (Gamma).—*Fanny Bias* is a Gallic or French rose and not a climber; *Anadis* is a Boursault, and a climber. It is crimson with a purple centre. The other name we cannot make out. You were quite right not to cut off the tops of your violets when dividing them. The leaves are now at work preparing the materials for the next blooms.

POTATO PLANTING (Ibid).—Plant in autumn, but do not put on your soot and salt until the spring, about March.

PLUMBAGO LARPEX and ZACHSNERIA CALIFORNICA (A Leicestershire Subscriber).—There was such a demand for these this spring that the nurserymen were obliged to send them "out" in little morsels, after forcing them severely, so that those who had them late can only nurse them for next season. The first-named in a cold pit or window, and the second in the open air—a cold frame being even too confined for it.

DALIAS NOT GROWING (Ibid).—Your dahlia roots unfortunately lost their eyes, or growing buds probably, and, in such case, are of no more use. Let them remain, however, as they are; perhaps some of them will yet grow. The leaf you sent us is that of *Tradescantia discolor*, an old stove plant that might be wintered in a warm room, as it is one of the very easiest to manage. We had it once from abroad by the name of the "oyster plant."

WEEKLY CALENDAR.

M	D	W	D	JULY 12—18, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
12	TH			Magpie moth seen.	Great Snapdragon.	59 a. 3	12 a. 8	11 30	22	5 14	193
13	F			Hoplia argentea seen.	Blue Lupine.	iv	11	11 56	21	5 22	164
14	S			Drinker moth seen.	Everlasting Lupine.	1	10	morn.	24	5 28	195
15	SUN			6. SUN. AFT. TRINITY. St. Swithin.	Small Cape Marigold.	2	9	0 27	25	5 35	196
16	M			Blackbird's song ceases.	Large Garden Convol.	3	8	1 3	26	5 41	197
17	TU			Burnished-brass moth seen.	Sweet Pea. [vulus.	5	7	1 47	27	5 46	198
18	W			Whitethroat's song ceases.	Autumn Marigold.	6	6	2 40	28	5 51	199

ST. SWITHIN, bishop of Winchester, was born of noble parentage in that city or its vicinity; became a member of the regular clergy attached to its cathedral, and, finally, was raised to its mitre, in 852, by his pupil king Ethelwolph. There is ample testimony of his learning, charity, and humility; and we need cite no other than that he was the preceptor of king Alfred, as he had been of his father, that he built numerous churches where none previously existed, and that he directed his body to be buried before the western door of the cathedral, esteeming his remains unworthy to repose within its walls. His death occurred A.D. 862. About a century after, being canonized by the Romish Church, it was not considered appropriate that the relics of a saint should be without a worthy resting place; and, a sumptuous shrine being prepared within the cathedral, it was proposed to translate them thither on the 15th of July. The ceremony, however, was delayed for forty days by the occurrence of a series of heavy rains, giving birth to the lines proverbial throughout Great Britain:—

“St. Swithin's day, if thou dost rain,
For forty days it will remain;
St. Swithin's day, if thou be fair,
For forty days 'twill rain no mair.”

We have seen that a similar saying is applied in other places to the anniversary of the translation of St. Martin, July 4. In France it is in a like manner connected with the festival of St. Gervais, June 19; and there is no doubt that it is founded on the observation, made by men of science as well as rustics, that if much rain occurs at the close of June, or early in July, it is followed by a long series of similar weather. There is also reason to know that rain at this period is beneficial both to our corn and fruit crops. The cultivators of the soil are acute observers of such phenomena, and they have two

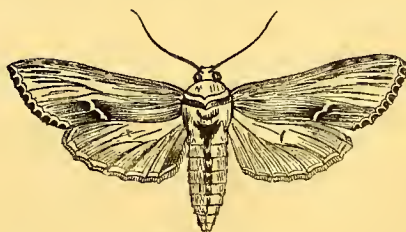
sayings indicative of their opinions upon the point:—“When it rains on St. Swithin's day, he is christening the apples;” and,

“A shower of rain in July, when the corn begins to fill,
Is worth a plough of oxen, and all that belongs therewith.”
The small Cape marigold is very appropriately associated with this day, because, as is indicated by its botanical name, *Calendula pluvialis*, it closes its petals at the approach of rain.

PHENOMENA OF THE SEASON.—In our last Number we mentioned a few examples of the modes in which the stamens are induced to scatter their pollen upon the pistil, but we must not pass from the subject without mentioning some other extraordinary instances of the contrivances adopted by their Creator to secure the impregnation of the seeds of plants. Created in every conceivable variety of form consistent with beauty, the pollen would not reach the stigma of some flowers unless some especial means were provided to effect the contact. In the *snowdrops* and *campanulas*, whilst the pendant corolla serves as a canopy to shelter the parts from rain, the mouth of that canopy opens wide to admit the winds for the dispersion of the pollen over the stigma. *Ruppia maritima*, and other aquatic plants, float constantly at considerable depths beneath the water's surface; but, when the season for impregnation arrives, they rise to the surface, expand their flowers, and then again sink within the waters to perfect their seeds. The female flowers of the *Falsaria spiralis* grow, as the name intimates, on spiral stalks, and remain coiled beneath the water until the time for the pollen's shedding arrives—the stalks then uncoil and bring the flowers above the surface. What adds to the wonder of this phenomenon, the male flowers are grown on separate plants; and hence there is further occasion to admire the wisdom which provides that the females shall always rise to the surface at the appropriate time, and that they should never in vain “call their lost lovers.” After the pollen has been scattered over the stigma, the stalk resumes its coiled form, and withdraws the flower once more within the bosom of the water.

INSECTS.—Especially during this month, but at various periods between the end of May and August, a greenish white or slaty-coloured caterpillar—more than two inches long when full grown—may be found feeding on the various species of mullein (*Verbascum*) and figwort (*Scrophularia*). On each segment of this caterpillar are four large black dots, sometimes separate, and sometimes running together; there are smaller black dots along the sides, and a double row of yellow spots on the back, with others on the sides. The head is yellow, spotted with black. This is the larva of the Mullein moth (*Cucullia verbasci*, and *Noctua verbasci* of some). This moth appears commonly in May. It is about two inches across the expanded fore-wings, which are of a dark reddish-brown colour, clouded and lined with black, and with a large white spot on each resembling the figure 3, as shewn in the annexed drawing. The hind-wings are also reddish-brown, but paler, and sometimes almost white. The female lays her eggs upon the mulleins, and their relative species of plants, which eggs are hatched in a few days if the weather be warm. The caterpillars when of full growth we have already described, and they then descend into the ground at the roots of the plants on which they have been feeding, where they form cocoons of half-rotted leaves and earth, so firmly bound together as to resemble small hard clods. They remain in the pupa state until the following May, or even for two years. It is curious that the caterpillar of this moth, although its food is usually vegetable, eats, with much apparent satisfaction, the skins which from time to time it casts in the progress of growth. This strange repast, says Mr. Kirby, seems even a stimulating dainty, apcudily restoring the caterpillar to vigour after the painful moulting by which it has been supplied with it.

JULY	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
12	Cloudy.	Fine.	Fine.	Fine.	Cloudy.	Fine.	Fine.	Fine.
Highest & lowest temp.	64°—44°	75°—49°	77°—56°	78°—56°	64°—48°	78°—49°	90°—55°	81°—48°
13	Fine.	Fine.	Rain.	Rain.	Showery.	Fine.	Fine.	Fine.
	68°—42°	73°—48°	67°—51°	71°—56°	71°—55°	87°—58°	90°—59°	83°—52°
14	Showery.	Fine.	Cloudy.	Fine.	Fine.	Fine.	Fine.	Stormy.
	66°—45°	76°—45°	76°—53°	75°—47°	71°—49°	84°—54°	93°—59°	87°—60°
15	Stormy.	Fine.	Fine.	Fine.	Cloudy.	Fine.	Fine.	Fine.
	68°—51°	74°—46°	77°—56°	76°—46°	71°—46°	76°—55°	88°—58°	71°—41°
16	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.
	73°—44°	75°—53°	80°—58°	75°—42°	71°—54°	70°—55°	82°—58°	78°—49°
17	Fine.	Fine.	Fine.	Fine.	Showery.	Fine.	Stormy.	Fine.
	75°—49°	75°—52°	81°—57°	73°—52°	75°—54°	71°—52°	72°—58°	76°—47°
18	Cloudy.	Fine.	Rain.	Fine.	Fine.	Fine.	Cloudy.	Fine.
	75°—48°	81°—57°	75°—49°	73°—45°	76°—48°	71°—51°	71°—49°	80°—51°



As was expected, by all who have made the diseases of plants their study, the month just closed, characterized by great warmth and dryness, succeeding as it did to a spring of unusual coldness and wet, has been productive of a very prevalent appearance of HONEY-DEW. It is upon our roses, currants, and

gooseberries, but has exuded in such excess from the leaves of lime and filbert trees in Hampshire as literally to drop from their surfaces. It has been stated by some that, notwithstanding the sweetness of this exudation, bees never feed upon it, but we can bear evidence of the contrary, and so numerous

were these insects, on one occasion, a few days since collecting the honey-dew from some filbert's leaves, that we were informed that a swarm was alighted upon them. This, however, continued only for less than a week, and now, though some few of the leaves are nearly as clammy as ever with this saccharine exudation, we do not see any bees visiting them.

The honey-dew is not, like the potato murrain, a modern infirmity of plants; for it is mentioned by Pliny under the fanciful designation of the 'sweat of the heavens,' and the 'saliva of the stars,' though he questioned whether it is a deposition from the air, purging it from some contracted impurity. More modern philosophers have been quite as erroneous and discordant in their opinion relative to the disease's nature. Some, with the most unmitigatable asperity, declare that it is the excrement of aphides. Others as exclusively maintain that it is an atmospheric deposit, and a third party consider that it arises from bleeding, in consequence of the wounds of insects. That there may be a glutinous saccharine liquid found upon the leaves of plants arising from the first and third named causes is probable, or rather certain; but this is by no means conclusive that there is not a similar liquid extravasated upon the surface of the leaves, owing to some unhealthy action of their vessels. It is with this description of honey-dew that we are here concerned. The error into which writers on this subject appear to have fallen, consists in their having endeavoured to assign the origin of every kind of honey-dew to the same cause. Thus the Rev. Gilbert White seems (*Naturalist's Calendar*), to have had a fanciful and comprehensive mode of accounting for the origin of honey-dew, telling us, under the date June 4th, 1783, "vast honey-dews this week. The reason of this seems to be, that in hot days the effluvia of flowers are drawn up by a brisk evaporation, and then in the night fall down with the dews with which they are entangled." The objection urged to this theory by Curtis (*Trans. Linn. Soc.* vi. 82) is conclusive. If it fell from the atmosphere, it would cover every thing on which it fell indiscriminately; whereas we never find it but on certain living plants and trees; we find it also on plants in stoves and greenhouses covered with glass.

Curtis had convinced himself that the honey-dew was merely the excrement of the aphides, and he supported his theory with his usual ability, although he justly deemed it a little 'wonderful extraordinary' that any insect should secrete as excrementitious matter, sugar; he even thought it possible, if the ants, wasps, and flies, could be prevented from devouring the honey-dew, 'almost as fast as it was deposited,' to collect it in considerable quantities, and convert it into the choicest sugar and sugar-candy.

The fact that honey-dew is never found except upon the upper surface of a leaf, whilst the aphides

are as exclusively confined to the under surface, is fatal to the theory of Mr. Curtis.

We have no doubt ourselves that honey-dew is an unnatural exudation, caused by a heat of the air and dryness of the soil not suited to the habit of the plant on which the exudation appears. It is somewhat analogous to that out-burst of blood which in such seasons is apt to occur to man, and arises from the increased action of the secretory and circulatory system to which it affords relief. There is this great and essential difference, that, in the case of the plants, the extravasation is upon the surface of the leaves, and consequently in proportion to the abundance of the extruded sap are their respiration and digestion impaired.

Azaleas sometimes, but rarely, have the fine hairs on their leaves, especially on their lower surface, beaded, as it were, with a resinous exudation. It is never found but upon plants that have been kept in a temperature too high, and in a soil too fertile. This is a kind of honey-dew, and, like it, an effort to relieve the surcharged vessels; occurring also in various forms in other plants.

This honey-dew, or exudation of sap, may be both prevented and cured by mulching over the roots of the trees, and giving to them regularly and plentifully supplies of water. Where this was done to one of three filbert trees, all affected by honey-dew, and its leaves had been well syringed, it left that one, though continuing for weeks after unmitigated on the other two. This, added to the successful application of other liquids to plants, in order to prevent the occurrence of the honey-dew and similar diseases, seem to substantiate the opinion that a morbid state of the sap is the chief cause of the honey-dew; for it would be difficult to explain the reason why the use of a solution of common salt in water applied to the soil in which a plant is growing can prevent a disease caused by insects. But if we admit that the irregular action of the sap is the cause of the disorder, then we can understand that a portion of salt introduced in the juices of the plant would naturally have a tendency to correct or vary any morbid tendency, either correcting the too rapid secretion of sap, stimulating the plant in promoting its regular formation, or preserving its fluidity. And that by such a treatment the honey-dew may be entirely prevented, we have often witnessed in our own garden, when experimenting with totally different objects. Thus we have seen plants of various kinds, which have been treated with a weak solution of common salt and water, totally escape the honey-dew, where trees of the same kind, growing in the same plot of ground not so treated, have been materially injured by its ravages. We think, however, that the solution which has been sometimes employed for this purpose is much too strong for watering plants. We have always preferred a weak liquid, and are of opinion that one ounce of salt to a gallon

of water is quite powerful enough for the intended purpose. We are in doubt as to the correctness of Knight's opinion that mere water has a material influence in the composition of such a remedy, since we have noticed that standard fruit-trees, around which, at a distance of six or eight feet from the stem, we had deposited, at a depth of 12 inches, a quantity of salt to promote the general health and fruitfulness of the tree, according to the manner formerly adopted to some extent in the cider countries for the apple orchards, that these escaped the honey-dew just as well as those which had been watered with salt and water, though it infected adjacent trees which had been treated with neither salt nor salt and water. Our experience, we think, justifies the conclusion at which we have arrived, viz., that if the roots of a plant are kept healthfully moist, and its leaves are preserved also from excessive dryness, it will never suffer from honey-dew.

THE encouragement conferred upon us by the public justifies us in endeavouring to accomplish our wish to be still more useful, by adopting the increased number of pages which we this day and permanently intend to place before our readers. The STOVE department has been confided to Mr. ROBERT FISH, long favourably known as a contributor to the *Gardener's Magazine*, *Gardener's Journal*, and other periodicals, and now gardener to Colonel Sowerby, at Putteridge Bury, near Luton. Our increased number of pages will enable us to add this department to THE COTTAGE GARDENER, not only without decreasing the space allotted to the other departments, but leaving an increase of space for them. Besides, we find not only that many of our readers already possess little structures in which they cultivate stove plants, but that many more could not only do so but could force fruit, with scarcely any additional expense, aided by the information we shall be able to give them; information still keeping in view our prime object—utility, and the improvement of the gardening of the many.

THE FRUIT-GARDEN.

PERSEVERANCE NECESSARY TO SUCCESS.—This principle is as essential in the natural as in the moral world; most, if not all, of the success-crowned efforts of the present as well as the past times bear this impress on them. Why, then, should fruit cultivators expect to form an exception? True it is that blighting easterly winds, cold north-westers, and those April frosts, which appear to carry us back to the apparently hopeless scenes of a dreary winter, cast a damp on the human mind, and, for a moment, excite that sort of impatient spirit which would fain persuade us that our labours are vain, and that no substantial good can be achieved in fruit-gardening. Such glimmerings of querulous discontent we also have at times felt, as years have rolled on; but we must also confess and bear honourable testimony to a multitude of feelings of a less heartless, more energetic, and less desponding character, when, after the threatening dark cloud, we have unexpectedly met

with invigorating suns and genial showers, and have discovered, time after time, that our efforts, although frustrated for awhile, yet were marked by a real progress, which only required more temper, more patience, and a better mood of mind, to fully appreciate. We, therefore, if we may be allowed a rather coarse joke, say to all our fruit-growing friends, in the language of Cromwell, "Trust in the Lord, and keep your gunpowder dry." To apply the idea conveyed in this strange quotation from a strange character, we say, still trust in sound principles in preference to traditional maxims, and endeavour to increase your perseverance in proportion to the amount of your temporary defeat.

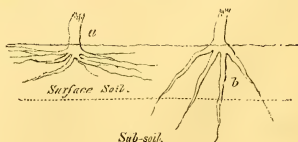
We have been led to make these remarks in consequence of several applications from earnest contributors to THE COTTAGE GARDENER, who, in addition to a real English spirit of perseverance, which somehow lurks at the bottom of the style of many of their letters, still show a shade of despondency as to the present prospects of fruit-trees, more worthy of eastern fatalists than the slowly-daunted and enterprising sons of the north. Many complain that they have no pears, although planted and managed according to the most approved maxims. Others have failed in their peaches, or cherries, or apricots, &c., &c.

Now, when we take into consideration the character of the past April, who can wonder at ill reports? We think it rather strange that there is any fruit at all, for we never during some two score years practice, or nearly so, knew such a perilous April for fruit blossoms.

With regard to *pears*, a great many of our subscribers have complained, in the course of their queries, of pears blossoming freely yet never bearing; and they naturally wish to know the cause. Now, we would have it understood that in this, as in many other cases, several causes may tend to one and the same result.

One cause appears to be a kind of decrepitude, the consequence of premature old age, induced by abuse of culture combined with deleterious subsoils. When we say "abuse of culture," we mean that to continue for years to dig a spade's depth and to crop over the surface roots of fruit-trees is sure in the long run to produce evil effects, more especially if the subsoil is of an ungenial character. Trees, in their earlier stages, may and will stand this foul play with impunity; and why? Simply because the vital power being strong and in vigorous play they can continue to reproduce fresh fibres, as a sort of equivalent to the mutilation they are made to endure. By degrees, however, this strong vital action becomes tamed; and, at last, if the poor old tree were skeletonised at the root, it would be seen standing on a few deep props, something after the manner of a three-legged stool. This is no strained account, as would be ascertained on a close examination as above suggested.

The following sketch will perhaps serve to illustrate the matter.



Now, when the conditions under which the roots are situated are taken into consideration, who can expect fig. *b* to continue for years in as healthful a condition as fig. *a*. Indeed, if such were the case, the ample directions given by all men of first-rate practice, to take every precaution in avoiding deleterious subsoils, would at once be overruled; and trees might be stuck in anywhere and anyhow, without the slightest pains. The unfortunate subject, fig. *b*, may indeed continue to grow for many years, but the consequences will be that the tree will be altogether thrown into a false position—the elaborations will be altogether defective. The tree will, perhaps, blossom freely through sheer poverty or the inability to “run to wood,” as gardeners term it; but depend upon it much of the blossom will be defective.

We cannot, like our friend Mr. Beaton, in his exceedingly interesting paper on Hybridizing, p. 143, urge so minute an examination of the component parts of the flower as he has done, but this we may say, that in matters of this kind we have in scores of cases found either no pistils at all or the same in the utmost state of decrepitude, in fact a withered abortion. Our readers will, no doubt, understand that by the pistils we mean the female organ of the flower, the little white column which stands up in the very centre of the blossom, and the agency of which is to convey the fertilising pollen or male dust down to the incipient embryo fruit or germ; or, as Mr. Beaton terms it, in the strict language of botanists, “the pericarp.” Well, then, it must be remembered that these pistils have a most important and excessively delicate office to perform; and are exquisitely endowed, both structurally and physically, in order to carry out the great end of nature, that constant reproduction which, through all ages, keeps our air-suspended ball clothed with verdure and fruits.

Nature has also endowed this organ with a terminating point, termed the stigma. This has, or should have, a viscid matter exuding at the point, in order to catch the pollen which flies off at random with every puff of wind. If, then, this viscid matter is absent through poverty of sap or the decrepitude of age, success is impossible. We have thus shewn what consequences may ensue through maltreatment; no doubt many more occur of which we are, in the present imperfect state of science, totally ignorant.

Persons, somehow, get an idea that pruning is to accomplish wonders in such a case; and one will show how he pruned half way down, and another at least three parts. But of what avail can scientific manipulations about the branches of the tree be when all is constantly wrong at its root?

Some old trees are great pets with certain persons, and no wonder: who does not look with something almost amounting to veneration on the fine old jargonelle at the chimney end, from which they remember receiving so many luscious treats in their childhood, and about which their father was so proud, and over which he took so much pains? To see such a pet continuing still to produce shoots one season, to canker in the next, is indeed grievous; and the mind of the owner is kept in a painful suspense for several years, as to whether to cut it down and plant anew. Here, however, the dread of waiting some four or five years before fruit is produced deters the proprietor, and he continues to try nostrums year after year, generally to end in failure. We have not space in this paper to offer special advice on this head, but we do intend to take the case of petted old fruit-trees in hand, and to offer some

wholesome advice; for these cases are by no means all incurable. Much may be done even when things look desperate; much more, however, by anticipation—by beginning to operate with the very first symptoms of decay.

It may here be observed, that in the case of fig. *b*, the deep roots extending into the subsoil must be cut away or extracted from the bad position they are in. Such cutting away, nevertheless, must not be done without some previous preparation; and in future papers we shall, for the sake of simplicity, in treating this subject, refer to the two figures here given.

As one preliminary step at this period, we would say, lay a compost, half manure and half turfy soil, which has been well blended for a twelvemonth, if possible, over the surface of the roots, extending from the bole nearly as far as the branches extend. This compost may be six inches deep, and a good watering with liquid manure occasionally will be a boon; the object being to do away with spade culture, if any, and to induce fresh fibrous surface roots to be produced, before cutting away the tap roots in the subsoil.

R. ERRINGTON.

THE FLOWER-GARDEN.

HARDY AQUATICS.—A correspondent has made some inquiries about these very interesting and ornamental plants. In answer to him, we might content ourselves by referring him to what we have already written upon the subject at p. 168, vol. 1. of this work, but as we there only somewhat briefly touched upon it, we shall now return to the subject, first describing the habitations suitable for them, the way to form them, and the culture they require, concluding with a select list of the most beautiful species. If a query arise as to the usefulness of such a subject or such plants in the amateur or cottager's garden, we reply that the greater the number of objects of interest and beauty in a garden of moderate dimensions, the more likely that garden is to increase a love of it in the mind of the possessor; and the more the love of the simple pleasures of gardening is ingrafted into the mind, the less power over it will the too common pursuits of low, degrading, falsely called pleasures have.

Situation.—We say, then, to the lovers of gardening, cultivate those really beautiful plants—hardy aquatics. They require a proper situation and element to grow them in. Choose the lowest part of your garden: dig out the soil or clay to a moderate depth; you may make use of this to form a small eminence, and on this eminence place a seat, planting it with shrubs or trees; and on one side of it you may have a rockery, a cave, a grotto, or simply only a rising ground to vary the surface of the garden or lawn; or it may be carted away at once if you do not think proper to make use of it for these purposes.

The **Aquarium** (place for water plants) may either be of a regular form, as a circle or oval, or irregular, which latter we prefer, with a bay in one part, a jutting promontory in another, a shelving shore here, and a steep bank covered with shrubs at another point. However small the piece of water may be, a little good taste and judicious management will have the best effect. Having formed the shape by digging out the soil to the required depth, from two to three feet, the next point is to make it hold water. There is nothing better than clay for this purpose; it will require preparing to make it retentive of water. Take a small portion, say a barrow-load, and chop it into small pieces with a sharp spade. If it be dry, add a

little water to it; then, with a wooden hammer having a long handle, beat it well till every part is of an uniform consistency, having the appearance of clay dough. Spread this on the bottom of the pond about six inches thick. Proceed with mixing up and beating barrow-load after barrow-load till the bottom is entirely covered. Then either put on a pair of wooden-soled shoes or go on it with naked feet—the last is the best way. Tread the prepared clay firmly, closely, and evenly down. Do this well and properly, and the bottom will never leak. As soon as that part is finished mix and beat more clay for the sides. With the spade, as soon as it or a portion of it is ready, dab it against the sloping bank, commencing at and joining it to the clay bottom. As soon as this is done beat it with the wooden hammer firmly against the bank. If you have plenty of clay, eight inches will not be too thick for the sides. Remember, the more firmly the clay is beaten to the sides, the better it will hold water. The clay must be quite pure; that is, have no stones or other matter left amongst it. If there are any such left, they will serve as conduits for the water to escape by, and all your labour will be in vain. Proceed with adding layers of clay upward until you reach the level you intend the water to be. Carry the clay puddle two or three inches higher, level the natural soil down to it, and let this soil be two inches or more higher than the clay. This will prevent it cracking away from the bank. Your aquarium is now ready for the water. Previously to filling it, however, cover the bottom, upon the clay, with a coating of loam, four inches thick. This is intended to encourage the water plants to root in, and cause them to grow finely. If you can procure a sufficient quantity of rough stones or pebbles, place them against the banks. These will prevent the water from washing away the clay puddle. All being now ready, let in the water.

Planting.—As soon as the aquarium is full of water you may plant the aquatics. There are several methods of doing this. The best is to have some wicker baskets of various sizes, to suit the size of each plant. Fill one with soil, inserting the plant intended for it at the same time; cover the top of the soil with some twisted haybands, coiling them round the plant; then lace them firmly down with some strong three-cord twine, passing it under the rim of the wicker basket, so as to keep in it the soil and the plant. Throw either a plank or a long ladder across the water. On this you can walk, carrying the plant with you. Drop it into the place you intend it for, and so treat all the other water plants you may have obtained, leaving space for others you may obtain hereafter. Some of them, the *water lily*, for instance, have their leaves floating on the surface, but this is not needful at first. They (the leaves) will soon rise to the surface, and assume their natural position. The *water violet* has both its roots and leaves floating; all that is required, then, is to cast it into the water, and let it flourish away as it pleases.

It may be, as in the case of our correspondent, that the water may be required for cattle to drink. In that case, a place should be fenced off with posts and rails, to prevent them trampling through the puddle or eating the plants. That part, as far as they can reach, should have the bottom, upon the puddle, covered with shingly gravel, to protect it from the feet of the cattle.

Some of our readers may wish to have aquatics cultivated in tanks formed with masonry, the water to be used for watering plants in pots, &c. This can be easily accomplished by puddling the bottom with

clay, as mentioned above, and building upon it sloping walls, using Roman cement for mortar. These, if well executed, are very ornamental and of a neat appearance. If the tank walls are carried up three or four feet above the level, the plants are then brought nearer to the eye. An example of this may be seen in the royal gardens at Kew. Single plants of this kind may be cultivated in vases or even in troughs, the only thing they will require being a portion of mud at the bottom for the plants to root in. The after-culture the aquatics will require is, if possible, to change the water frequently and keep the surface clear from water mosses. A few ducks soon clear off the latter; otherwise the mosses must be skimmed or flooded off with water, if there is supply enough.

A question has been asked, "Where are water plants to be procured?" The greater part of them are natives of this country, and may be had from their native habitats, but, as these habitats are not general, we may mention that the writer of this (Mr. Appleby) can supply them.

We subjoin the promised select list:—

Aponogeton distachyon (Two-spiked Aponogeton), a very pretty floating aquatic from the Cape of Good Hope; yet, although from a warm country, it is sufficiently hardy to survive an ordinary winter. It has white flowers.

Butonia umbellatus (Umbell-flowering Rush), one of the best of our native aquatics found in ditches. It has beautiful heads of pink flowers, and does not require deep water; consequently, may be planted near the edge of the water. Cattle are very fond of its leaves.

Calla palustris (Marsh Calla), a native of North America, and

Calla Ethiopica (African Calla), both plants of great beauty; the latter is on that account cultivated as a greenhouse and window plant, and is commonly called the "arum plant." This species is rather tender, but will survive our winter if planted in deep water.

Hottonia palustris (Marsh Hottonia), flesh-coloured flowers: a native of Britain.

Menyanthes trifoliata (Three-leaved Buckbean), with white flowers. This is another native species, growing in shallow waters. It is very pretty, and worth cultivation.

Nuphar lutea (Yellow-flowered Nuphar), a fine water plant, native of Britain.

Nuphar advena (Stranger Nuphar), yellow and red; a fine species from North America.

Nymphaea alba (White Water Lily). This is, without doubt, the finest of our hardy water plants. It loves deep water, with plenty of room, and a muddy bottom to root in. It then will produce numbers of its beautiful large milk-white flowers.

Typha latifolia (Broad-leaved Cat's-tail). Though not so showy as some species, this plant is worth growing, producing its large flowers abundantly in shallow waters.

If our correspondent's aquarium is large and will hold more than the above, we refer him to the list at p. 168, vol. i., above-mentioned.

FLORISTS' FLOWERS.

AURICULA AND POLYANTHUS.—Every day look over those that are to produce seed, and with a pair of scissors gather such pods as have turned quite brown. If you allow them to burst, it is likely you will lose some of the best seeds. Lay the pods, so gathered, upon a sheet of paper exposed to the sun until they

burst. A window ledge, or the inside of a garden frame covered with the glass, will be a good situation. As soon as the pods are opened and the seed quite dry, separate it from the seed vessels, put it in paper, and store it in a drawer in a cool room till the time arrives for sowing it.

DOUBLE ANEMONES.—Take up the roots as the leaves decay. Dry them gently and put them into bags till the planting time comes again.

CARNATIONS and PICOEES.—The florist will now be on the look out, for these flowers will be now opening. They require shade as they progress. If you have them on a stage with a rolling shade over it, all you will have to do is to let down that shade whenever the sun shines. For one or two flowers, and for such as have not the convenience of a regular stage and cover, a shade made as follows will be useful:—With some stout copper wire form a rim or ring, one foot diameter, attach to it six pieces of wire, and join the ends of each to a short pipe made of tin, $\frac{1}{4}$ inch diameter; then form another rim of the same size (one foot) and attach it to the other with short pieces of wire, two inches long. It will now have somewhat the appearance of an unglazed hand-glass. Cover it with unbleached calico, and give it a coat or two of boiled linseed-oil. It will be ready for use as soon as it is dry. The pipe, or socket, is intended to fit upon the stake used to tie up the carnations to. You have now a useful efficient shade and protector from wet for your carnations; and when their bloom is over, it can easily be transferred to the dahlia to serve the same purpose.

Carnations will now require plenty of water, regular attention to keep insects down, the buds thinning, and those that are left to bloom to have the flower cup or calyx opened with a pair of small pointed scissors. They will require cards, also, with a hole cut in the centre, to fit to the bud; each card to be supported by a short length of brass wire. These cards are to receive and support the lowest range of petals; and are of great use to such flowers as are intended for exhibition. They should be circular, and a little larger than each flower. The same kind of covers, or shades, but of less dimensions, will suit the *pink*; and cards to this flower of the same form will be useful in the same way.

T. APPELEY.

GREENHOUSE AND WINDOW GARDENING.

PLUMBAGO LARVENTE.—More than one correspondent has expressed doubts respecting this beautiful new plant. For instance, such little morsels of it as have been sold out from the nurseries are supposed never to be able to come to anything like a good large specimen, for a lifetime at least. This is by no means the case; and I am sure that the value of the plant has not yet been properly estimated. I was fortunate in getting a good bushy plant of it last August from Mr. Knight, as soon as the stock was "let out." It was in a six-inch pot, and had seven nice little shoots on it. Mr. Knight was so obliging, as he always was, as to say in the invoice, "keep it cool through the winter." This was a capital hint, and I have since learned that he kept it through the winter in a cool span-roofed greenhouse, from which the frost was merely excluded, and that treatment must have suited it well, otherwise he could not have produced it, as he did, by the thousand in so short a time. After dallying with it

for a few days, like a child with a new toy, my fingers began to itch for a few cuttings from it, and six out of the seven shoots were docked down three inches, and the six cuttings of that length were rooted just in thirteen days, and were soon put into as many thumb pots, thinking, of course, they would grow on for a while, and make nice little plants before the winter came on. But I committed a sad mistake, for grow they would not, nor did they make a single joint till the beginning of March, although they were kept on a shelf near the glass in the propagating house, which was kept up at stove heat all the winter. I also put the old plant into the stove for a few weeks, after the cuttings were taken off, to make it push another growth in lieu of the cuttings I took off. It did so, and immediately began to flower, and continued in bloom till the end of October, and a beautiful little flower it is, as blue as a violet. This plant was wintered quite cool, and did not begin to grow till the end of March. It has been potted three times since in very rich light soil, one half leaf-mould and peat, the other half of good rich turfy loam and sand—the four ingredients in about equal proportions. It is now in a twelve-inch pot, and stands just twelve inches high above it, and is twenty inches in diameter. By the time it will be in blossom, say about the end of this month, I expect it will be two feet through, and have a perfectly circular head. It will probably keep in bloom till late in October; after that it will be wintered in one of our coldest greenhouses, and get no more water than will keep it from getting perfectly dry. As soon as it begins to grow next spring, I shall cut it down close to the surface of the pot, and put it into a warm house to push it on a little; and, by the time an inch or two of fresh growth is made, I shall shake all the old soil from its roots, and repot it in fresh soil, and in as small a pot as I can get its roots into. Then I purpose encouraging it on for six weeks or so with a little heat, to see if I can get it into bloom by the beginning of July. I am satisfied, however, that it may be wintered in a dark room or shed like a fuchsia, but not to let it get quite dry the first season or two, till the roots get strong and woody. I even suspect we shall find some day that we can leave it in the open garden all the winter, cutting it down on the approach of frost, and thatching it over with something that will keep it dry and free from frost. If this should turn out practicable, it will spread about in a few years like a raspberry bush, for it has already begun to stolon, or throw up strong suckers from the roots like the raspberry. This habit we call *stoloniferous*, from *stolon*, the Latin for a sucker, and *fero*, to bear or carry.

Let us now return to the six unfortunate cuttings, and we shall find some consolation from the fact that hundreds of those nice plants sent out by Mr. Knight last August were mismanaged last winter like them. Their cultivators thought it no joke to risk a three-and-half-guinea new plant in a common greenhouse; and those who could afford the indulgence of a comfortable warm stove did so, and paid dear enough for their extra care. Then came the brown rusty leaves and the grumbling together; and not a few wished Mr. Knight and his new plant were sent to Bath, if not far away to a celebrated place on the west banks of the Jordan; and no doubt some went even as far as to wish D. Beaton was sent on the same pilgrimage, for recommending them this new China plant. However, patience and cottage gardening have now shewn that things were not so bad after all. Therefore, let those who possess

a small plant of *Plumbago* *Larpenæ* treat it kindly till the end of next September, and then allow it to go gradually to rest, and winter it after its own natural fashion, and we shall soon forget all past grievances respecting it.

A correspondent who adopts the signature "Seuilis," or old man, will excuse me if I differ from him a little as to the spring management of this plant. If it is wintered as above it will stand as much heat in the spring as any other plant we force for cuttings; but when we have it once fairly established, and in abundance, the autumn will be the best time to increase a stock of it for the following season, and in that case it should not be put into single pots, as my poor cuttings were, but a dozen of them planted round the sides of a five or six-inch pot, and so keep them in small compass, along with verbenas and things of that sort, during winter; and, with a little nursing at the end of spring, and till after midsummer, it will come in good time after the early annuals for an autumn bed in the flower-garden. If it will really answer that way, we have nothing so charming for a low bed at that season.

On the first of this month I planted out three dozens of it in quite an open situation, and after a short time I shall be able to say how far it will succeed that way. I am also trying specimens of it in a cold frame, from which I draw off the lights at night, to let it enjoy the cool night dews; and likewise in a close damp house, much warmer than a greenhouse, but not now artificially heated, so that I shall shortly be in possession of all the facts respecting it that are necessary for its successful management, and which I shall not fail to relate at the proper time. People who know little of these things will probably be surprised to hear that five thousand pounds sterling have changed hands, or at least have been "booked," for this single plant in the short space of nine months, and I have heard the figure confidently put much higher.

ZACHSNERIA CALIFORNICA.—This is another novelty which I recommended in these pages, and which has given rise to many doubts and fears, more so even than the plant last mentioned, and, had I not seen a perfect specimen of it in bloom this time last year, I should have probably joined in the outcry before the spring was out. But many of us have been aware for many years that this is really a beautiful thing, perfectly hardy in this country, and a rival to the wild fuchsias in our flower beds; and there is no question at all about the matter. It is, however, a very slender growing plant, particularly so when brought into heat for propagation. The rate at which it has been called for from the nurseries this spring caused it to be kept close at work like the new verbenas and the like, so that only the merest morsels of it could be had for either love or money; and, coming as they did out of close, hot, damp pits, the wonder is how they have borne with this harsh treatment so well. The truth is, however, it bears all the heat and hardships of propagation better than the verbenas, and, like them, a week or two of intermediate temperature will bring it round again to stand the open air as if nothing particular had befallen it. We all know that little bits of new verbenas, bought in at the end of spring, take some time and nursing to make much show in the borders, and it is just so with this new Californian. I received the merest apology of a plant of this from the Horticultural Society last autumn, which is now hard upon two feet high and twenty inches through; the branches just beginning to

show flower buds after yielding about 500 cuttings, the greater part of which are now planted out in beds, the rest being kept in reserve to furnish another bed which is now filled with white and purple *clarkii* mixed, than which I know nothing so gay in their season, much more so than the two kept in separate beds.

GERANIUMS.—From the middle to the end of July, those geraniums that have flowered early will have to be cut back, so as to get a lot of fresh shoots for flowering next season. It is not good management to allow any pot geraniums to flower too long—for not more than six weeks or two months at the farthest—neither is it desirable that the young wood which will arise after cutting down should be longer than a few inches by the end of the autumn; therefore, where a succession of flowers is kept up with a few plants, all the success hinges on the proper management of these plants. The more low and bushy they are kept, the longer they will live, and the better they flower. Gardeners often make them grow so fast, and they have such a knack of training out the branches, that a two-year-old plant would seem as if it were three times that age; but, with the ordinary culture, it takes at least five years to make such plants of them. Therefore, unless they are cut very low each time, they cannot come to a respectable age without becoming bare and bandy-legged. The great mistake in the management of window geraniums is, that they are so seldom trained when they are young, or after they are cut down. Whatever shoots they make are allowed to grow straight upwards, and then the strongest rob the others of their proper share of the ascending sap, which makes them still more vigorous, while, at the same time, the weaker ones suffer in proportion. Thus their natural condition in the wilderness is exemplified under a strictly artificial system, and yet nobody is to blame for all this. The best gardener in the country recollects the time he could not grow a geranium, and formerly there were no cheap books, or periodicals, from which an ordinary mortal could pick up even the crumbs of gardening, and if one got the loan of a gardening book, it was ten to one against his understanding half the phrases used, for they were only intended for the perusal of scholars and professional readers. Every profession had, or used to have, a *summa*—*damia* set of phrases for itself; but all this is now changed for the better, and, as it is thought genteel and fashionable to possess window plants, we must keep in the fashion by giving up our old fashioned way of growing them. I have been in every county in England but one, and I never saw finer grown window geraniums than may be seen in and about Ipswich. It is true that here and there you may see such beauties in the windows, and in baskets, and rustic vases about the doors, but here every body seems as if vying with his neighbours in growing window plants. How they keep them through the winter is the great mystery, for you may often see whole lines of three and four-year-old geraniums in their windows. Young geraniums that have been bought in this season are sure to be right enough at the bottom, and all that they require is to be cut down to three eyes of the new growth they made this season, and the third or last eye left on the stump should be on the outside of the shoot, so that it may grow out laterally, and give a better form to the future plant. If this third eye happens to be on the inside, or upper part of the shoot, pick it out with the point of the knife, and cut to the next eye above it, which is sure to be on the underside, or, at

least, on one side of the shoots. Indeed, although we say cut to three eyes, it is not at all necessary to cut so close; there must be only three eyes left, but, as I said on pruning roses, these three eyes need not be the very lowest ones on the shoot; the three lowest eyes that are *best placed* on the shoot are to be preferred, say one on each side of the shoot, and the last underneath it; for older plants that have been thus treated in former years, one need not be so particular, because, if the foundation is already well laid, you can hardly build wrong upon it, provided you do not allow strong eyes to grow from the upper side of a branch close to its bottom. All upright shoots in the centre of a geranium are better avoided, and it is easier to cut out the eye at first than to train down the shoot from it afterwards.

When weak shoots occur, they must be cut to the best placed eye, and only that one left to grow. Nothing looks so ugly as to have long brown shoots on an old geranium. The older the plant is, the better clothed it should appear at the bottom, but that can hardly be obtained if the shoots are allowed to spring up directly from the bottom. All the main shoots, while they are young, ought to be trained a little sideways. But what is to be done with those deplorable skeletons that have not a leaf, or a trace of a bud within twelve or eighteen inches of the pot, and their tops so tall as to darken the window lights? for in a greenhouse if ever so small we never see such bad gardening now-a-days. Half the world would say, throw them in the dust-hole and buy new ones: very good advice if they would follow it up by handing over wherewithal to buy them; but nothing is easier for careless people than to say buy a set of new things—plants or any thing else; but where on earth is the money to come from for all this? It is often as difficult to buy a geranium as to buy a new carriage. They have an old saying in the Highlands, that a man is not worthy of a new pair of shoes until he learns how to mend his old ones; and we may apply the adage on this side of "the border" by saying that he we who cannot prune his old geraniums properly should never be indulged with young ones. Therefore, we must prune down those long-legged plants, even if we lose them in the attempt; and if we should kill them, we may as well do so at three or four inches from the pot as at ten. Let that be the mark, therefore; choose a smooth part between two joints, and off with the top at one cut. "Here is a pretty dilemma we have just got into! Why that plant will bleed itself to death; we forgot to let it get quite dry before cutting it." If THE COTTAGE GARDENER was to get hold of this, we should have the whole laugh of the parish against us." However, there was a remedy or two mentioned lately in our pages for bleeding in the vine, and this will be a capital opportunity to prove the effect, but I must entrust you with the experiment; only, I may just remark that this stump of a plant had better be put into the kitchen window, as being the warmest place, and, if it will get over the double misfortune—I mean this bleeding and the long legs—it will do so the sooner by being kept in the warmest place. Give it no water till this wound is quite dried over; after that, you may give it a plentiful watering, and, if you sprinkle a little water over it now and then, it will not fail to make a good plant yet, if the roots are quite healthy.

D. BEATON.

STOVE AND HOTHOUSE.

At this advanced period of the season there will be some difficulty in rendering this department, all at once, popular and instructive; because, in the first place, those who possess these structures in their gardens will already have gone through many of the processes which it will be my province to describe and analyze; and secondly, because, from those possessing as yet neither stove nor greenhouse, we cannot expect at first to receive great attention: more especially amid the joys and the beautiful that are now so attractive in external nature. Why (they may ask) should we *now* trouble ourselves with plants and produce, which only the rich can command, when we can so easily, without traversing the damp paths and close humid atmosphere of hothouses, mark and enjoy the gorgeous beauty of opening flowers, shodding their fragrant perfume in an atmosphere common alike to prince and peasant; amid those gentle breezes just sufficient, along with passing clouds, to deprive the sun of its fierceness, and spread the glow of ruddy health over the cheek of female loveliness! or, reposing under the shade of trees, this season more than ordinarily luxuriant in their verdure, thence to listen to the rasp of the mower's scythe, mellowed in its tone by the hum and carol of the sprightly hay-maker; thence to see the cattle up to their knees in herbage, lashing gently their sides in ecstasy, and thus, by many associations, lending vivacity and cheerfulness to the richest scenes; and thence to feel the pleasant mingled odour, wafted alike from new-made hay and flowers of all hues and forms, whether peeping from the hedge bank, adorning the meadow, or gracing the parterre!

In order to experience contentment, or what is taken for such, a practice is too generally in operation of undervaluing what we do not possess, and painting in high colours our own acquisitions. Such a practice is just emblematical of the conduct of the fox who pronounced the grapes to be as sour as crabs, merely because he could not get hold of them; different modifications of the same principle is seen in those who envy what is splendid in a neighbour's garden, and become dissatisfied with their own, though, upon a certain scale, the one may be as near perfection as the other. Both practices arise from want of gardening knowledge, and intellectual and benevolent expansion of mind. What is beautiful in plants should be admired for its beauty alone. The pleasure arising from producing and tending that beauty is a different thing. Whether the plant be grown in hothouse, greenhouse, garden, or field, its peculiar beauty should at once be recognised. Cultivate plants with such a spirit, and they will promote that which is civilising, soul elevating, and goodness tending. If you have no hothouse of your own, yet in that of your neighbour you may see much to admire, much to stir to emulation, nothing for mean jealous envy, but many things practised, which will act as hints and lessons. The methods of culture are many and diversified; the principles on which they are based are few and simple; and thus, in treating the department assigned to us, we trust we may be able to throw out hints that will be useful to the mere general reader.

PLANT STOVE.

Every glass structure connected with a demesne, however small it may be, ought at all times to be an object of attraction. Its very presence ought ever to carry with it the ideas of *fitness* and *utility*. Fre-

quently this is lost sight of during the summer. The flower-garden is everything—the plant houses have been made subservient to its decoration; and one, at least, becomes little better than a receptacle for a jumble of *et ceteras* that should never prominently meet the eye. Where there is a stove and greenhouse, the plants of the former are frequently transferred into the latter during the summer months, while the denizens of the latter are turned out of doors. This change will be of advantage to both if performed with judgment, as at this season of the year, unless in extreme cases, no artificial heat will be wanted, with the exception of giving less air and more moisture. Stove plants require much the same management as those generally found in the greenhouse. When in bloom, the lower temperature of the greenhouse will preserve it longer; while the fine massy leaves that many stove plants possess will give an air of dignity and tropical interest to the greenhouse, which it would not otherwise have. But, even to attain this desirable object, no greenhouse plant, unless of the hardiest nature, should be turned out of doors, even to the most sheltered spot, before its fresh young wood is made; and no stove plant should remain longer in the greenhouse than the state of its growth may require. A low temperature, with shade, will preserve the bloom; a low temperature, with plenty of air and light, will harden and ripen the young wood; but a higher temperature and a closer humid atmosphere will be required, after flowering, to stimulate growth. Where there is only one house, much may be done by having several glass or transparent calico partitions, by means of which different degrees of temperature and humidity may easily be maintained; and, failing these partitions, the plants must be arranged in groups at the different ends of the house, that as much as possible their individual wants may be attended to. With tact and attention the smallest place may thus be rendered interesting, because due regard will be had for the principle of *fitness and unity* of expression. This fitness and unity can never be seen where any part of a garden, and more especially a structure for plants, appears in a neglected state. The ideas and expectations which such structures awaken should never be disappointed by inattention to culture or cleanliness. Be beautiful in expression, if you can, *everywhere* in your garden, but, in your *plant houses*, have some of your choicest *gems*, and then your friends, as well as yourself, will see that you do not possess a house without an object. A few good plants, with plenty of room for them, will at all times, but more especially in summer, produce a better effect than mere large collections. Great opportunities have been presented of late years for decorating the stove, during the summer and autumn, with soft wooded plants, such as the *achimenes* and *gesnera*, &c., which require no room in winter, and which, though when forwarded, bloom beautifully in the greenhouse or window during summer, yet generally maintain a richer luxuriance when continued in the closer atmosphere of the stove. In circumstances, however, where utility rather than ornament, the sense of taste rather than the senses of smell and vision, are to be gratified, the stove may be partly changed into a

FORCING HOUSE

for the growth of *cucumbers*, *melons*, *strawberries*, *figs*, and *peaches* in pots, and *vines* up the rafters alternately with *creepers*, or in pots, either trained up a rafter, or round stakes, or a trellis. Much in a little space will thus be produced, and, where industry is

combined with intelligence, very gratifying results will be obtained. Of course, mere profit, in such a combination, must be a secondary consideration; extra attention to cleanliness and the keeping down of insects will be requisite, but there will be not only the satisfaction of eating produce reared under your own inspection, but amid many, or, at least, some failures, there will be acquired that *general practical knowledge, the safest companion and the best testing agent of science.* ROBERT FISH.

THE KITCHEN-GARDEN.

CELERY.—This vegetable, the cultivation of which is so well worthy of attention, cannot be too much watered in dry weather; and to produce it large, crisp, and of fine flavour, liquid manure must be abundantly supplied. Care must be taken in removing the pricked out plants, to the permanent beds or trenches, that a nice ball of earth is attached to each root, that all superfluous suckers are removed, and the plants put into the earth with the collar just above the surface; for nothing is so likely to retard the growth of celery as placing the collar of the plant in the ground. A considerable growth must be allowed previously to the commencement of applying earth to bleach it.

ROUTINE MANAGEMENT.—*Cardoons* may still be transplanted with success, and those that are already established should have the earth's surface well stirred about them, and good manure water pretty liberally applied. *Cape brocoli*, of both the white and the purple sorts, *coleworts*, and *cauliflowers*, should be planted in succession; and the last sowings made for the present season. *Mulch* all growing crops, and, if dry weather prevails, apply liberal soakings of water. *Trench* and *fork* all spare ground, that slugs may be thereby banished, and the soil kept in a healthy state. Some of the early kinds of *potatoes* will now be ripe enough to take up, and some of the middling sized tubers stored for seed. The ground, after the potatoes are taken up, should at once be cropped with *turnips*, or some of the *kale* family, or any other winter vegetable. *Turnips* should be sown in succession; and to prevent the ravages of the fly, apply a dusting of dry charcoal when the young foliage is moist either with dew or with gentle showers. In small gardens, the leaves may be sprinkled over with water in the evening, at any time, and the dust applied immediately, which will always ensure a healthy crop. Where charcoal dust is not easily procurable, tie on some green boughs of elder to a couple of sticks, or a temporary frame, as you would a bush harrow, and drag it over the turnips, which plan will also be found an excellent preservative of the crop. *Swedish turnips* should also now be transplanted out, either on the early-cleared potato or other spare ground.

CUCUMBERS.—If dry, parching weather prevails, those in frames or pits should have the ventilation varied for a few hours in the heat of the day, by opening the lights at the front part, by which arrangement the sun's rays will be in some degree retarded, owing to the light being thrown on the beds at a flatter angle. Apply water abundantly at shutting up time. If those vines that have been producing fruit for some time should now be beginning to look exhausted, and the application of liquid manure does not seem to revive them, let them be destroyed, and fresh soil and materials for receiving young plants be prepared and applied. *Ridge cucumbers* should also be well attended to with regard to stop-

ping and regulating the vine, pegging it down carefully and securely, to guard against the destructive effects of wind.

MELONS.—Give all possible assistance to those plants that are now swelling off a crop of fruit, by the application of liquid manure: such as are making their growth, and have not their crop of fruit set, should be duly thinned, stopped, and regulated, as previously directed, and a watchful eye kept over them. When the largest number of strong fruit blossoms are opened at one time, they should be carefully impregnated during the forenoon part of the day, after having been well aired, so that they may be perfectly dry beforehand. After this has been duly attended to, sprinklings of tepid water should be applied round the edges of the interior of the pit or frame, and they should be shut up early in the afternoons. When the fruit has fairly set, and made a kindly growing start, lose no time in selecting the required quantity of the strongest and best shaped fruit for the crop, throwing away all others, and begin with a moderate application of liquid manure. As the fruit increases in size increase also the strength of the manure, leaving off its application altogether as soon as the fruit has reached its natural size. If these directions are properly attended to, abundant crops of superior flavoured melons may at all times be secured. No liquid manure, nor any other kind of stimulant, should ever be applied either before the fruit has been well set and has made a start, or after it has attained its full size. The preparation of a good healthy soil for the culture of melons, in the first place, is the most essential point, and of much more consequence than the application of any stimulants.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 34.)

Among the many bright flowers that deck the garden at this glittering season the scarlet *lychnis* shines conspicuous. It should be carefully supported by sticks, as the stems are brittle, and a rough wind soon breaks them off or bends them down, injuring the appearance of the plant. The colour is exquisitely vivid; and, though the form of the plant is rather stiff and ungraceful, it adds extremely to the brilliancy of the border. It was brought into Europe originally from Asia; and it is said to have made its first appearance at the period of the crusades—thus marking a very interesting era in history, leading our thoughts again to Jerusalem, that home of the Christian's heart, and reminding us that as our ancestors struggled and bled to deliver the Holy City from the hands of the infidel, so should we earnestly and zealously "contend for the faith once delivered to the saints." Let us not strive about things only that are seen: let us wrestle for those that are not seen. The very colour of this doubly-interesting flower affects us, coming as it does from a soil crimsoned with blood, and in times when the blood-red cross waved over legions of brave and devoted hearts, all pressing onwards to Jerusalem. Does it not address itself with exhortation and reproof to us? Are we so running, so fighting, so pressing onwards to the heavenly goal? There is also the Chinese *lychnis*, and the *lychnis fulgens*, a native of Siberia: this latter is a superb plant. They both require some little care in frosty weather, but our common variety

is perfectly hardy, and continues to bloom for three or four months. There are also white and double flowering varieties of great beauty, but I have never seen them cultivated, and I believe they are not often met with in our gardens. They would add greatly to the effect of the borders, if encouraged, from their height and richness of bloom.

The gay, graceful *fuchsia* is now taking its place among the flowers, and rivaling them too. With its long drooping sprays, and elegantly formed blossoms, it is a striking ornament, either in the window, in the border, or as a shrub. It blooms till so late a season that it is quite invaluable, and is easily increased either by cuttings or separation of the roots. I have seen a large plant cut with a spade into three or four parts, and each has contentedly settled itself in its new abode, and become a stout little tree. I like to see one well-shaped plant standing alone in the lawn, in its own little circle, with its tall taper boughs branching out on every side, laden with its long scarlet flowers like coral earrings. It has a beautiful effect; and this plant may be trained into a very full and handsome form. I have read of a close worsted net being a sufficient protection for the *fuchsia* during winter, but, never having tried it, I cannot safely recommend it. The experiment being simple is worth a trial, and success would be really beneficial to the simple gardener. Trained against a wall *fuchsias* look extremely well; their blossoms are so elegantly formed, and the contrast between the rich crimson and deep purple petals of which they are combined so striking, that they are peculiarly suited to a wall or trellis, where their beauty is most fully displayed. How lovely they must look in their wild state, in the woods and valleys of their native land! They are the rich productions of Chili and Peru, and give us a charming idea of the wild flowers of that fertile land. Their name is derived from that of Leonard Fuchs, a German botanist who lived and wrote in the sixteenth century, but they are very recent settlers upon our soil. The first that ever appeared in England was the *Fuchsia coccinea*, placed in Kew gardens in 1788, and varieties were not obtained till 1823. There is little in the nature of their own country to make them regret it. They tell us of rich mines teeming with gold and silver, it is true; and they tell us, also, of the cruelties and bloodshed that gold and silver caused, thus reading us a wholesome lesson, and bidding us be contented with such things as we have, instead of coveting riches which lead us into temptation and snares, "and into many foolish and hurtful lusts which drown men in destruction and perdition," but they have little else to say. How their warning voice endears to us our native soil, teeming with plenty, yet requiring us to use diligence and industry in its improvement, where we possess those blessed statutes forbidding unlawful gain, and urging to honest labour, and where we can enjoy our possessions in peace and safety! Let the cottage gardener, as he waters and tends his graceful plant, reflect upon the blessings, denied to many lands, which Britain's sons possess. Let him adore the unmerited mercy which causes us to differ, and let him cling faithfully to his Queen, his Church, his country, and, *above all*, his God, for it is by His blessing only that England has braved the surges that have roared throughout the world, and that she still stands calmly amid the wreck of nations. The lowliest cottager may be one of his monarch's body-guard, one of the Church's body-guard, one of England's body-guard, as well as one of God's faithful people; therefore, let him not think his garden

and his plough are all he has to look to. He will doubly enjoy his smiling home, and blooming plants, and fruitful soil, and busy labours, when he feels how much of his country's welfare depends on his steady efforts and peaceable demeanour. The example of one honest, loyal, religious *cottage gardener* is a benefit and an honour to the parish in which he lives; and who will not strive thus to labour for his country's service?

TO CORRESPONDENTS.

ONION-LIKE PLANT (T. Morgan).—We cannot "guess" what your onion-like plant is, nor would a drawing of it assist us much; the alliacies are by far too numerous and so much alike that we should very probably find it difficult to determine the species if we had the plant in flower.

SEPALES (Dianthus).—This name is applied to the sections into which the calyx is divided.

ROBERTS'S STRAWBERRY TILES (J. Roberts).—You observe that these being raised on feet from the ground the space underneath forms "a good trap" for slugs.—There is something in this, but we prefer flat tiles as these do not afford any harbour at all for the slugs. You say that tiles not raised allow the dirt to be "washed over them in heavy rain," and here your tiles certainly have the advantage. Having tried black tiles we prefer them to those not blackened; and we do not see how the flat tiles could improve your registration, since a drawing of them and description were published in 1844. Whether we were right in saying that flat tiles may be obtained at a few shillings per 1000 any one could ascertain by inquiring of a tile-maker.

NAMES OF PLANTS (Un jeune homme).—Your plants are *Eutoca divaricata*, *Geranium sanguineum*, and *Veronica gentianoides*. (*Little Tom*).—There is no doubt of your plant being *Nemophila atomaria*. Those flowers with blue-black petals, edged with white, are only a variety, probably resembling that seen by Mr. Loudon at Tonbridge Weir. See *Gard. Mag.*, viii. 506. N. S. (*A Country Clergyman*).—The larger specimen of fern from your church buttress is *Polypodium Vulgare*, and the smaller from the ruined tomb is an *Asplenium*, but we cannot say which species without seeing a larger specimen, and with fruit beneath the leaves. (*Affred*).—Your's is *Meibomia confertifolia*, a greenland plant. (*F. H. Enay*).—It is *Hoya carnea*, you will find directions for cultivating it at page 62 of this volume. (*H. R.*).—We were right at first, your plant is *Geranium striatum*. (*Rusticus*).—The leaf you sent is a young one, we think, of the Umbrella-tree, *Magnolia tripetala*. If you send three inches of the top and three inches of the bottom of an old leaf, we could say for certain. We wish all of our correspondents to know that it is very seldom that the name of a plant can be told from one of its leaves. (*F. Giles*).—Your pelargonium is not *Pearl*, its crimson flame has more the character of Beck's *Annette*, but it is impossible to decide from a single damaged bloom. The other plant is *Bouvardia triphylla*, a greenhouse shrub.

CINERARIA SEED (W. J. Edge).—The last week of this month and the first in August cineraria seeds may be sown to produce plants for flowering next spring. A close cold pit is the best place in which to get the seedlings up, but a window will do almost as well.

BUDDING KNIFE (A Propagator).—Mr. Turner, of Neepsend, Sheffield, has sent us a most convenient and efficient budding knife. It has a blade of the usual shape, a handle permitting a firm grasp, and, at the end opposite to the blade, a very effectual shaped grooved wedge of white metal for raising the bark. This metal does not strike a black colour with the gallic acid in the bark, checking the wound's healing, as would be the case if the wedge were of iron. This wedge closes with a spring like the blade, so that the knife may be carried easily in the pocket. It is the invention of a friend of Mr. Turner.

POTATO DISEASE (Potato).—The leaves of your "second earlies" are blighted as many potatoes are when affected by the decay of the tuber, usually called "the potato disease"; but we have seen similar blotches on potato plants of which the tubers were not diseased; and we have seen diseased tubers when the leaves were not blighted. How are the tubers of your "second earlies"?

WORMS IN STRAWBERRIES (Rev. E. F.).—These which you have sent us are the snake millipede, *Julus pulchellus*, drawn and described at page 139 of the present volume. We believe that it does not feed upon the strawberry until this has been previously attacked by the slug, or has been otherwise wounded.

NAME OF INSECT (T. Morgan).—"The little, active, shining insect," of which you enclose specimens, is the sugar louse, *Lepisma saccharinum*, common in dirty kitchens, &c. This is not a subject connected with the objects of our journal, and as we really find it difficult to provide space for intelligence closely connected with gardening, we hope that you will not seek from us information on other topics.

PENTON OR PAINTON CABBAGE (C. C.).—You may sow this during the first fortnight in August, the seedlings to remain pricked out through the winter, and finally planted out in the spring for summer use.

CANCELLED LEAF (J. Dawson).—The leaf containing pages 21 and 23 in our third number, is to be cut off and destroyed; and the leaf containing the same pages given after page 84 is to be substituted for it. By mistake, the wrong drawing was inserted in No. 3. Your other questions shall be answered next week.

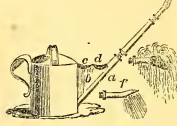
NIGHT SOIL (A. Z.).—House sewage strained, as directed at p 7 or p. 6 of our first volume, is a very excellent liquid manure, but to

make it from night soil would be a disgusting process, and not at all calculated for any garden.

SIGNATURES (S. S. G.).—Our correspondent suggests, and wisely suggests, that if every one in writing to us would merely sign their initials, and the initial of the place where they reside, it would save us some time and space. Thanks for the report of your commenced experiments with sea-weed; we shall be still more obliged by a full report when you have weighed the produce.

CICEROB (Ibid).—This is the *Cichorium intybus*, and popularly known also as succory or wild endive. It is raised only from seed, which should be sown early in April if required for the roots, in a rich, light soil. Sow in drills half an inch deep and a foot apart. It would by mere chance that shrivelled cuttings of liquorice root bought from the chemist would grow. But we have seen it kept by them in damp sand quite fresh and juicy.

WATERING-POT (W. W.).—You ask us which is "the best kind for watering flowers?"—a general question scarcely admitting a precise answer, but, we think, that of which the following is an engraving and description, published some years ago in the *Gardener's Chronicle*, is about the most simple and generally useful. It is made by Mr. G. Thompson, 390, Oxford Street, who states that its superiority consists in the roses being so formed as to give the water thrown from them the nearest resemblance to a gentle shower of rain, rendering it peculiarly suitable for watering seedlings or other tender plants. As the brass joints, which connect the roses to the sprout, are made water tight, there is no danger of its returning outside to the annoyance of the person using it; a is the spout to which the roses are screwed; b, the box to contain either sprout out of use; c and d, the holes in which the joints are placed; e, a large rose for watering flower beds; f, a smaller rose for watering plants in pots. We know of no reel for winding silk from the worms superior to the common reel. Thereafter have been more than one edition of "The Gardener's Dictionary."



HONEY-DREW (A Bee Master).—Our editorial to-day answers your inquiries on this subject. Your other questions shall be replied to next week.

MANURELUS SOIL (W. H.).—The best is a compound of loam, including the turf, from the surface of a rich old pasture, mixed with one third its bulk of decayed cow-dung. Continue to water your cutus until about September, and then winter it as recommended at p. 44. Your Banksian rose against a south wall does not bloom; perhaps you pruned it at the wrong season of the year: now is the proper time. If you strew salt thickly over your pitched yard, three or four times a year, it will effectually destroy the weeds and grass.

TROPEOLUM CANARIENSE (A Lady Subscriber).—Your "canary plant" is attacked by the green-fly or aphid; and the large one you enclose, coloured light green and yellow, may be called *Aphis canariensis*. Cover your plants over with a table-cloth, and fumigate them with tobacco, according to some of the modes described at p. 270 of our first volume.

BOX CLIPPING (B. D.).—This only requires to be done once a year. June is the best month for the operation, but you may do so now. Select showery weather for performing the clipping.

PRUNING RHODODENDRONS (Rev. H. Stevens).—The best time for pruning them is just after they have done flowering. Nothing short of tiring, burning, and resowing, will effectually eradicate the eye-germ from your field.

MIGNONETTE FOR TREES (A Novice).—This should not be transplanted at all, being one of the most difficult to nurse after transplanting; but prove yourself a good gardener by transplanting your small seedlings into small pots, as soon as you finish reading this number. Place them for ten days or in a close alight situation under a glass. Grand loss would be the best place for them, damp the leaves gently twice a day till they begin to grow, and in future sow in pots for this purpose.

BALSAM LEAVES DYING (Ibid).—When balsams get out of order there is hardly any means of doctoring them to advantage. When any of ours get deranged we plant them out of doors, and they often prove useful that way.

FUCHSIA (Ibid).—They only give Latin names to the wild fuchsias. English seedlings bear English names only. There is no English for the fuchsia itself; it is called after a botanist named Fuchs. It does add to the interest, as you say, to "know the Latin names of all the plants one grows," and their meaning too, when we can get at it.

FUCHSIA FULGENS (W. H. R.).—You complain that its rich purplish red foliage has become green as its growth advances, and you wish to "fetele the colour back." Why, you know, the leaves of our own forest-trees turn from their various spring tints to their "summer green," and no one can prevent this or bring back their early hues in the autumn, neither can you that of your fuchsia fulgens. It was ordered in the beginning that these things should be so, and that is the best reason to assign for them.

THE ICE PLANT (Ibid).—This is an annual which requires the same treatment as rigid or out-of-door clematis. You are too late for it this season, as April is the right time to sow the seeds.

THE BEGONIA (Ibid).—This has been touched on merely in black ink. It is numbers 1 and 2 too late to root in this season; but if you take it already, all that it now requires is to be constantly kept well watered and exposed freely to the air. It is one of the best things we have to bloom in a window without much sun, if first reared in a sunny place. Its names are *Begonia Evansiana* or *discolor*.

BEES THAT WILL SWARM (*An Apianian and J. W. Sice*).—We can only say, in answer to your statement, do all that you can to prevent swarming by giving room and ventilation, but should your bees swarm notwithstanding all you have done, never attempt to return them to the parent hive, for it is perfectly useless. A few years since, a swarm was returned to Nutt's hive, by a friend of ours, seven times, and 13 queens killed! Had your swarm been hived in the usual manner on the 1st of June, from 30 to 40 lbs. of honey would, in all probability, have been collected by them in this time, whereas, under the present circumstances of being frequently returned, they have been idle. It is always so; when swarming is contemplated, work is abandoned.

TREES OVER-LUXURIANT (*Leighton*).—Your case is certainly a curious one. After so much pain and expense you assuredly deserve a better fate. By your trees making a vast quantity of "sappy wood," we should infer that they have many deep roots in soil by far too rich. In proportion as your climate (at Shiffnal) is cold, so should a more severe limitation of the roots take place. Had you staked the age of the trees, we could have offered you more certain advice. As it is, we advise you to commence rooting up some of the hardest worn or wildest trees this autumn, and commence planting on the platform or dwarfing system, directions for which will be found in our pages. If your trees make sappy wood, why use manure either solid or liquid? A more severe root-pruning would probably be beneficial, with any manure that you can get for sappy wood. You will find a paper on trees circumstanced as yours are in about a fortnight. We shall, however, have much to say on this head for months, at intervals, introducing useful hints preparatory to the planting season. The double digging of your garden will be the good policy for vegetable culture, but not for fruit trees. We have examined your dried-up specimen of *Knight's Monarch*. We fear it will prove untrue. It must be borne in mind that all the first "Monarchs" sent out by the Horticultural Society of London were mistakes. For this an apology was made soon after.

PERITO MANCRES (*S. T.*).—You cannot lay too much stress on the value of liquid manure. One thing we must say, that it should not be applied in a crude state. We should consider that your powerful tank materials would carry six times their bulk of water, if the material must come in contact with the leaves of vegetables. As to the *ferrie* by the acid, there can be no doubt as to its economical bearing. Your general policy seems very good. Your wall trees not bearing of course require no stimulants. Would it not be well, however, to use up the sewage matters on your farm, and in brew gruno water and soot water for your garden?

DAVE VINCE (*Dennis, S. P.*).—It is not improbable that yours is by no means a case of disease, properly so called, after all. We should opine that, from the superlative character of your sunshine, and the immense quantity of rain which suddenly supervenes, your case may be what British gardeners call "supersaturation." Assuming the ground to be round heat existing of some ninety to a hundred degrees, and abundance of moisture, what is the necessary consequence? The young growth becomes enlarged in a hurried manner, and the perspiratory action is increased in a dangerous degree. Things like this happen frequently in England, and would be more plausible material could we increase the heat of the climate suddenly by some ten or fifteen degrees.

MAY-DUKE CHERRY (*A Novice*).—We commiserate you sincerely about your pet cherry. Do not despair, however. Remember what a spring we have passed through. Besides, you will find that as your cherry gets older the fruit will "set" better. This is always the case in our garden fruits—their grossness of growth is averse for awhile to fertility.

BOTANY (*D. E. G.*).—There is no better mode for you to acquire a knowledge of this science than by studying indefatigably the best publications, and examining the structure of plants as they fall in your way, endeavouring by dissection to ascertain the genera to which they belong, and their specific names. Lindley's School Botany is an excellent elementary work.

STOCKING A GARDEN (*J. W.*).—It would require an entire Number of *THE COTTAGE GARDENER* to answer such a sweeping inquiry. You cannot do it all at once. Each month has its appropriate work of planting and sowing. See what is said under the head "nillotment gardening," and in the "calendars," in the last Number of each month.

CRABEES, &c. (*D. H.*).—You will find a list of *cabbages* and *broadal* at p. 121 of our first volume, and of *savoy* at p. 266. There is only one kind of *caviflower*. Directions for sowing them, &c., will be found in our calendars.

WINDOW PLANTS (*W. H. L. R.*).—These when put under a fringe are best plunged in water within it.

MISTLETOE CULTURE (*H. R.*).—You will find every particular at pp. 22 and 166 of the present volume.

HURBAN CULTURE (*Hortus*).—Put some stable muck on the surface of the soil over its roots, and cut down the *four* stems as they appear, but leave the leaves until they die off naturally.

FIRE BUILDING (*F. Glen*).—You will find full directions at p. 160 of our first volume. You had better heat it by a common furnace and due.

BEES NOT USING UPPER HIVES (*Beta*).—The upper hives and glasses should be put upon the stock hives at the end of April, and upon swarms about eighteen or twenty days after their being hived. The communication between the boxes of "Taylor's bar-hive" should be opened at the same time; both in Taylor's bar-hive, and in glasses a piece of guide-cord should be first erected in the appendix to the third edition of Taylor's "Bee-keeper's Manual," and in page 42 of the present vol. of *THE COTTAGE GARDENER*. Putting a piece of glass or small hive upon a stock after it has swarmed is useless.

CRACKLEDONIA (*Isis* (*Up seune homine*)).—This grows best in good sandy soil, like that in your garden, provided the bottom is warm, for this, being from Constantinople, requires more warmth

than the other strong growing irises. Our bricklayer has a large plant of it, which flowers every year in deep, black, sandy soil, with a damp bottom. Your plant was taken from this one, and grown in the same kind of soil, but not so deep, and on a chalk bottom. It only flowers once in three or four years. If you can remove your plant next September, and place it in a low sheltered situation with a moist bottom, but well drained, we think it will flower freely. It is a beautiful thing, and worth any ordinary trouble. All the strong growing irises should be divided and transplanted every third or fourth year, and the autumn is the proper time. When removed in the spring, only the coarsest of them flower the same season.

MORPHOLOGY (*E. H. M.*).—Thanks for the trouble you took to send us the specimen of roses in a transition state to a profliferous flower. In one of them, which received no manure, he says it was prolonged in the centre, having a fringe of eight young flowers at the opening of the pericarp, then a few leaves scattered on the new stem, with flower buds at their axils, and the whole surmounted by a large double rose. Many strange conformations of this nature are met with in the rose every season.

STOCKS FOR ROSES (*Rev. G. E. L.*).—You will find this subject considered at p. 176 of our last Number.

BENDING ROSES (*W. H. G.*).—We are much obliged to our friendly correspondent for pointing out what might have led to a serious mistake, as some of our readers might have misunderstood the directions as well as W. H. G. The direction is this, "leave the wood full in the eye of the bud" (vol. i. 225.) Now, any one accustomed to budding would at once understand that the wood is the *bad* tissue only was meant, all the rest being to be removed, so as to leave none of the wood in the chink of the bud, but the wood which belongs to the bud. If that wood is by any chance drawn out of it the bud is useless, and will not grow.

BANKSIAN ROSE (*Asotie*).—Your Banksian rose has been planted twenty years against a south wall, thrives well, is under the shade of a large tree, and does not flower. We think it a pity to remove so fine a tree. Cannot you top the branches of the large tree so they will not shade nor drip upon the rose-tree? Do you prune it rightly? It flowers upon short spurs growing from the previous year's wood. If those spurs or short branches are pruned off yearly, there will be no flowers. If you can have the large tree lopped—that is, cut back—let that be done as soon as possible. Cut away, also, all too luxuriant shoots (gourmands or gluttons) from the rose-tree now. In autumn loose the tree from the wall, and cut away at least half of the old wood. Train the remainder regularly on the wall, and close it in all in the side shoots of the branches left. Pruning, dig the border, adding some leaf-mould or very rotten dung, and we have no fear your Banksian rose will flower satisfactorily. We would, however, remark further that, if the large tree cannot be cut back, it would be better to remove the rose-tree, and the best month to do this is the latter end of October or the first of November. We would advise you to prune the roots of the rose-tree now. Dig carefully down to them at about three feet from the stem of the tree, cut the roots through there, and fill up around them with some rich light earth. It will strike fresh fibrous roots into that earth, which roots will be a great help to the growth of the tree when the removal. It is very probable the removing the tree would cause it to flower abundantly. There is, however, some danger in removing so old a rose-tree, but it is worth a trial.

ROSES WITH GREEN CENTRES (*R. C. S.*).—Your rose-trees generally this year produce green buds in the centre of each rose, and to that extent as to mar the beauty of the flowers. Your predicament is by no means a singular one; we have observed several cases similar. The cause is a too great redundancy of sap. This may be caused by a too rich and wet soil; by too long continued rains in early spring, followed by late spring frosts. The first cause may be prevented having that effect by taking up the trees in autumn, draining the soil, and adding some fresh pure loam without manure. Then, previously to replanting, prune in pretty severely the long wiry roots, pruning the branches also in the same ratio. You ask what are you to do now? We advise you to cut away all the long wiry roots, and the Bourne, Noiset, and autumn-flowering varieties will push again, and produce, it is probable, more perfect flowers. Some kinds are more subject to this malformation than others: *Madam Hardy*, for instance. This variety in most situations, whether wet or dry, whether the season be favourable or not, produces the most perfect management may be, will produce those misshapen flowers. What are we to do, then? Are we to discard this and other varieties with the same propensity? We say, no! use every preventive, and cut away the bad flowers as they appear.

ANNUALS IN TUBS (*E.*, *Falmouth*) or old *Etichyrus spectabilis*, and the larger variety of it called *Purpurea urandifolia*, are not at all difficult to manage. The same treatment as for the epimises will do for them, and both these and the epimises are managed in every respect as heaths. They are slow growers, and will not grow much after the month of May till the next spring.

PETUNIA SEED (*Uth*).—It is too late now, and fully too early, to sow petunia seeds. The end of August will be early enough to sow before winter, but the first week in March is the best time in the year to sow them, the young seedlings being troublesome to carry through the winter. You had better go on crossing the best sorts this autumn, and save the seeds till next spring. We are not florists enough to say which really is the best petunia for crossing. What we have seen of florists' petunias are not at all to our fancy. Our hybridist will notice every case of this nature which comes before us, and we think he can safely be relied on.

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WEEKLY CALENDAR.

M	W	D	JULY 19—25, 1840.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock hcf. Sun.	Day of Year.
19	Th.		Humming-bird Hawk-moth seen.	Golden Hawkweed.	7 a. 4	5 a. 8	sets	②	5 56	200
20	F.		Margaret. Goat moth seen.	Virginian Dragon's Head.	8	4	8 a. 17	1	6 0	201
21	S.		San's declin. 29° 28' N. Musk beetle seen.	Philadelphian Lily.	10	2	8 54	2	6 3	202
22	Sun.		7 SUN. AFT. TRIN. Magdalen.	African Lily.	11	1	9 26	3	6 6	203
23	M.		Turtle-dove last heard.	Dark-purple Scabious.	12	0	9 53	4	6 8	204
24	Tu.		Swallow-tail moth seen.	Tree Lupine.	14	VII	10 18	5	6 10	205
25	W.		St. JAMES. DS. CAMB. B. 1797.	Bane-berry.	15	57	10 43	6	6 11	206

MARGARET was the daughter of an idolatrous priest of Asoch, and became a convert to Christianity. Olybius, the Roman president of the East, wished to espouse her; but, upon her refusing to relapse to idolatry, he had her tortured, and then beheaded, about the year 275.

MAGDALEN.—This festival, in commemoration of her out of whom Christ expelled "seven devils" (Mark xvi, 9), was first instituted in the time of Edward VI.

St. JAMES, surnamed *the Great*, either because the senior of the two James's, or the most distinguished by Christ during life, or because the first martyred of the apostles, was the son of Salome, the cousin-german of the Virgin Mary. He and his brother John were summoned from mending their nets to be "fishers of men," and were named, by their blessed Master, "the sons of thunder." Bonenages. St. James boldly preached the gospel among the dispersed Jews until A.D. 44, when he was accused before Herod, and beheaded by his order. He is not the author of "The Epistle" which forms a part of our New Testament. Oysters come into season on this day; but the adage relating to this shell-fish, warns us that it is never excellent except when there is an *r* in the name of the month—an adage evidently intended to exclude the months in which the oyster is breeding. On this day, when the Roman Catholic religion prevailed in England, it was customary for the priests in the orchard districts to bless the apple-trees, and sprinkle them with holy water.

PHENOMENA OF THE SEASON.—The most striking phenomenon now occurring in our gardens is the ripening of the fruit. Currants, gooseberries, apricots, early apples and pears, cherries, raspberries, and strawberries, are now gratifying every sense with which we are blessed, for the very vendor's cry of them in our streets is musical. Varying as fruits do in form, colour, flavour, and odour, still they all have one common office—the maturing of the seed they contain. To effect this they require a due supply of sap as well as of the peculiar juice of the parent plant, for they make no further advance if the entire wood be cut through below them, so that they are only attached to the parent by a strip of bark; neither will they advance, though fully supplied with sap, if the peculiar juices are cut off from them by

removing the leaves that are above them on the branch. Yet each fruit has a peculiar elaboration of its own to perform, for though the fluids afforded by the branches and leaves be nearly similar, yet each fruit differs from another in fragrance and flavour; six different varieties of the peach and of the apple, huddled upon the same branch, still retain unaltered their times of ripening, and their distinctive colours and flavours. Now, the processes going on at different periods of a fruit's growth are very opposite in their character. During their green and growing state they are usually converting gummy matter into an acid; but during ripening they, as commonly, are converting an acid into sugar. To convert gum or mucilage into tartaric acid, as in the early growth of the grape, oxygen in excess should be absorbed, for their relative components stand thus—

Carbon	42.23	24.65
Oxygen	50.84	69.32
Hydrogen	6.93	6.03

They might, therefore, be expected to absorb more oxygen than the leaves, and this is actually the case; for though a vine branch will continue to vegetate in a glass globe hermetically sealed, yet the grapes upon it will not increase in size unless oxygen gas be from time to time admitted. The same phenomenon occurs during the ripening of the grapes; oxygen has to be absorbed during the conversion of the tartaric acid into sugar, but a larger volume of carbonic acid has to be evolved, and this is coincident with the result of well established experiments, uniformly testifying that carbonic acid is given out abundantly by ripening fruit. "Six equivalents of tartaric acid," says Liebig, "by absorbing six equivalents of oxygen from the air, form grape sugar, separating at the time twelve equivalents of carbonic acid." This, however, is not the only decomposition taking place whereby sugar is formed in ripe fruit, but there is sufficient reason to believe that its mucilage and starchy constituents are converted into saccharine matter by the combined agency of warmth and the acids. It is thus that apples are rendered so much sweeter by baking; and M. De Candolle states that the pulp of apple dissolved in water with a vegetable acid is converted into sugar; and that gummy matter obtained from starch, and mixed with tartaric acid, aided by warmth, effects a similar transmutation.

INSECTS.—During the evenings of this month and August, the Magpie moth is very commonly found. It is the *Abraxas grossulariaria* of some entomologists, and the *Geometra grossulariaria* of others. It usually measures about one and a half inch across the expanded fore-wings, which are very slightly yellowish-white, variously spotted with black, more or less like those in our drawing, for the marks are never uniform; and there is a band of pale orange across each of the fore-wings. The hind-wings are of the same colour, but without any orange colouring. The body is orange, spotted with black. The female deposits her eggs upon the leaf of a gooseberry or currant-tree, and, from these, little looping caterpillars come forth in September, and, surviving the winter, begin to feed again upon the leaves as soon as these open in the spring. They are full grown towards the end of May, and enter the chrysalis state between that time and the end of June. In this state they remain for about three weeks, and then the perfect moth comes forth. The caterpillar is yellowish-white, with an orange stripe, more or less complete, on each side, and with numerous black spots, largest on the back. The chrysalis is black, with orange circles round the pointed end. The caterpillar prefers the leaves of the gooseberry and red currant, but, after stripping these to their very stalks, it will feed upon those of the sloe, peach, and almond. Hand-picking, dusting with the powder of white belladonna, and burning the leaves early in autumn, are the best remedies and prevention against this marauder.

JULY	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
19	Fine.	Showery.	Fine.	Stormy.	Fine.	Showery.	Showery.	Cloudy.
Highest & lowest temp.	73°—54°	73°—52°	68°—44°	74°—44°	71°—52°	74°—53°	70°—52°	74°—56°
20	Rain.	Showery.	Cloudy.	Fine.	Cloudy.	Fine.	Cloudy.	Stormy.
	63°—55°	73°—50°	68°—54°	76°—43°	71°—53°	73°—51°	70°—55°	72°—44°
21	Showery.	Fine.	Fine.	Fine.	Fine.	Showery.	Fine.	Cloudy.
	67°—51°	65°—47°	66°—55°	82°—49°	73°—57°	73°—55°	70°—58°	71°—51°
22	Rain.	Fine.	Showery.	Cloudy.	Cloudy.	Fine.	Cloudy.	Cloudy.
	67°—51°	69°—46°	68°—52°	80°—53°	71°—54°	70°—54°	73°—45°	73°—65°
23	Fine.	Fine.	Showery.	Cloudy.	Showery.	Fine.	Fine.	Rain.
	61°—53°	70°—42°	64°—46°	80°—61°	58°—53°	80°—58°	74°—46°	70°—33°
24	Fine.	Fine.	Fine.	Fine.	Cloudy.	Rain.	Fine.	Cloudy.
	60°—56°	84°—49°	68°—42°	87°—53°	66°—55°	71°—47°	70°—55°	73°—51°
25	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Rain.
	68°—51°	77°—43°	73°—47°	92°—62°	64°—57°	70°—45°	67°—46°	68°—53°



LET any two parties take precisely similar flowers and vases, let them be in separate rooms, and when they come forth with their bouquets, these will never be similarly arranged. When we say "similarly," we do not allude to the doctrine of chances, shewing that

it will be thousands to one against the same flowers being placed exactly in the same places, but we mean that the taste of the arrangers will be so differing that the same colours will be not placed together, and the same form will be not adopted. More than this, we

may add, that in every such instance of rival display, one bouquet shall almost invariably be most strikingly more beautiful than the other. In this there is really nothing more surprising than there is in the similar result of experience, that two painters, with the same colours, canvas, and pencils, invariably will produce pictures on the same subject essentially and strikingly different. In both cases—the arrangement of the cut flowers and the composition of the two pictures—diversity of taste and of judgment prevail, yet both may have some degree of beauty. It is, therefore, not a pointless question which now lies before us, “Are there any rules for the arrangement of cut flowers?”

Beyond all doubt there are some general rules for such arrangement, which may be followed with a certainty of producing pleasing results, and we will commence by repeating, as we stated on a former occasion, that flowers may be arranged either according to the harmony or the contrast of colours. Red harmonizes to orange, orange to yellow, violet to red, indigo to violet, blue to indigo, and green to blue.

Green is the contrast to red, sky-blue to orange, yellow to violet, blue to orange red, indigo to orange yellow, and violet to bluish-green. To find the contrast of any flower, cut a small circular piece of one of its petals, place it upon white paper, look at it steadily with one eye for a few seconds, without allowing the eyelid to close, then look from the coloured circle to another part of the white paper, when a circle of another colour will be apparent. This circle is called the spectrum, and is the true complementary colour or contrast required.

There is no doubt that arranging flowers according to their contrast or complementary colours is more pleasing to the eye than placing them according to their harmonies. Consequently, a blue flower should be placed next an orange flower, a yellow near a violet, and a red or a white should have plants with abundant foliage near them. “White,” says Dr. Lindley, “suits blues and oranges, and better still reds and roses, but it tarnishes yellows and violets. In all cases, however, when colours do not agree, placing white between them restores the effect.” These dictates are frequently available in flower-borders, and always in the exhibition of dahlias and ranunculuses, as well as for cut flowers; and it is quite certain that such contrasts are as effective in promoting the beauty of flowers as an orange dress is in rendering a fair face ghastly, or as blue is in making a brunette sallow.

Form has very considerable influence over the beauty of the arrangement of a bouquet. If the vase is high, the flowers must be arranged in a pyramidal form, with the tallest in the centre; but if they have to be arranged in a tazza, or flat vessel, the nearer the mass of flowers approaches to a flattened segment of a sphere or globe, the more agreeable. In

every case, whether the vase be an upright Etruscan or of tazza form, it should be very considerably concealed by the flowers: in the first case, by drooping flowers, such as fuchsias, onosmas, stephanotis, and others of that habit; and in the case of the vase being of a flat form, by green leaves of the ivy or rose clustering around it. Dark leaves, such as these and of the canellia, always contrast better with the flowers in bouquets than any foliage of a lighter hue.

Perhaps the most important rule relative to the arrangement of bouquets is, do not crowd the flowers. One of the most vulgar-looking, oppressive objects to look upon, is the tightly-bound huge conglomeration of flowers stuck into a pitcher of water, and called by its tasteless accumulator, “a nosegay.” Such a mass of flowers usually contains a number sufficient for furnishing a dozen tastefully disposed bouquets, for flowers in these can scarcely be arranged too lightly and sprinklingly; for if the arranger finds it needful to introduce even a sprig, to fill up or to conceal any objectionable spot, that part is most usually a failure—it looks crowded, and the flowers appear as if without room sufficient to display themselves.

Flowers for vase bouquets should be always cut from the parent branches, and with a sharp knife; for the less is the injury done to the vessels of the stalk, the longer do these vessels retain the power of drawing in the necessary moisture. Even when the flowers begin to droop, they will often revive if the ends of the stalks be cut off.

Wetted sand is much better for arranging flowers in than water only, for the stems can be thrust into it so as to retain the flower at any desired inclination.



Whether water only, or wetted sand, be employed, when a fresh supply of moisture is required, the flowers will be stimulated and refreshed by adding to the water two or three *drops* of spirit of hartshorn, or of camphorated spirit, or a few grains of common salt.

The greatest enemy to the endurance of a bouquet is the extreme dryness of the air of our sitting-rooms. The flowers will retain their beauty treble the time if a bell-glass be turned over them, so as to check the excessive evaporation from their leaves and petals. A very elegant mode of effecting this is afforded by a small table, having for its top a marble slab slightly hollowed in the middle to contain a little water, in which the edge of the bell-glass rests, as shewn in the annexed sketch.

The unnatural light to which flowers are exposed during festal nights is but slightly detrimental to them; it is the dryness of the air that is most fatal to their vigour, and this dryness is increased in proportion to the number of the lights and the heat they emit. The vitiated air, or, in other words, the large quantity of carbonic acid and carburetted hydrogen gases produced by the combustion of the wax or gas, and the breathing of the visitors in well-lighted and crowded assemblies, is also very injurious to the healthy growth of plants. Consequently, on such occasions, bouquets are more than ordinarily in need of glass shades, excluding as these do the air, and retaining as they do the moisture.

WHEN another instance like the following can be quoted within the first year of our existence of the benefits derivable from a more general diffusion of horticultural knowledge, who can hesitate from encouraging local societies to offer cottagers' prizes, and adopting other measures to promote the same good object?

"I believe I should be doing myself a great injury (injustice?) were I to neglect writing to you at the present time. Let me first state that I never had a yard of ground capable of cultivation, never dug a yard, nor yet planted or sowed any kind of seed or plants previous to the publication of your excellent work, *THE COTTAGE GARDENER*. I am a shoemaker by trade, and was greatly afflicted by the sedentariness of my employment, added to which was a habit of drinking intoxicating drinks to excess; and at the time I first saw the placards announcing your publication, I was in a state of great nervous debility. So much was my whole frame enervated, that my arms hung almost paralyzed by my side, and even I had to take my right hand to lift my left hand as high as my breast. Such was my state then; thank God, it is not so now. I became a subscriber, and have since succeeded in getting an allotment of 400 yards. This brings me to the point. The ground was sub-let to me by a tenant who held three lots. I took to your advice literally in every department of cropping, except potatoes, which I manured. The ground had had several potato crops taken thereof previous without manure, so I was afraid of not getting a crop without manure.

I dug my manure ten inches deep for parsnips, carrots, and onions, and was laughed at by several *experienced* gardeners. I sowed all in drills, which was not approved of by the same people. I pleaded my want of *experience* as an excuse, and consequently received a great deal of very *friendly advice*, which I promised to attend to next year, but I had pinned my faith to your sleeve this year, and could not retract. Next year I expect more will do the same, for my crops, so far, look far better than any of my advisers."

THE FRUIT-GARDEN.

THE VINE OUT-DOORS.—It will be remembered that, in *THE COTTAGE GARDENER* for June the 7th, we had proceeded with the subject of vines out of doors up to the period of stopping beyond the young bunch. It is now high time to show how the rest of the season's culture should be carried out. Soon after this stopping, the portion of the young shoot both below and above the bunch will begin to put forth what we described in a former Number as "axillary shoots." Indeed, if the vine be strong, almost every leaf will produce one of these. On examining the socket whence this axillary shoot proceeds, there may be discovered, betimes, a second bud, which is the bud from which the blossom of the next year should proceed. It has always occurred to us that this is a wonderful provision expressly afforded to meet those contingencies which are sure almost to occur, and, like the duplicate bud or germ, which most of our ordinary garden beans contain, undoubtedly placed there by the ordinance of our gracious Creator himself, whose power and goodness are equally evinced in the lowest as well as the highest orders of creation. It will be readily seen that without this provision the vine would speedily attain a stature and character in our vineyards somewhat inimical to a compact course of culture; for, as the buds (if solitary) broke and grew, the lower portions of the stems would speedily become naked and barren, and the whole would end in a straggling and festooning character.

To return to summer practice. These axillary shoots must be pinched back, when a few inches long, to a single leaf, suffering, however, the leading shoot to ramble longer before stopping. If there be much space of open walling over head, the leading shoot may be suffered to ramble until it has produced as many points as will be considered necessary to prune back to in the ensuing spring. This accomplished, it, too, may be "stopped;" but in all subsequent stoppings we would always allow the terminal point to ramble more than the side ones; the latter, indeed, must, through the whole course of culture, be stopped as frequently as they begin to darken the principal leaves. These stopped axillary shoots will, therefore, have to remain as mere stumps, with a single leaf, through the summer, unless any of them be found to intercept the light too much from the main leaves, in which case there is no harm in cutting the axillary stump clear away: indeed, some cultivators trim them away specially about the period of the fruit completing its first swelling. We, however, prefer less severe mutilations, and should consider it better practice to leave as many of them as do not intercept the light until the period at which the berry begins to ripen, when, from the decline of solar light and heat, it becomes necessary, in our climate, to strip them away.

THINNING THE BERRY.—Although grapes on the open wall are not generally thinned, yet it must be understood that they are thereby rendered much superior to those unthinned; the process answers out of doors as well as with those in vineries. The berries will be higher flavoured and more juicy, and they will, moreover, colour better than neglected ones. We would, indeed, advise that they be thinned more on the open walls than in houses, that the fading sunlight of autumn may play freely through and amongst the berries. Of course, before thinning out the berries, the number of bunches must be carefully looked over, in order to remove any surplus ones. No policy is worse than over-cropping the vine; nothing is gained by it but mere bulk, and great is the sacrifice both of flavour in the berry, and as regards the vigour of the vine for ensuing seasons. At page 117, we gave a general rule for the distance of bunches: we there gave one foot apart as quite near enough, supposing the vine to be strong, and covering the wall or building equally; we, however, admit that it is not very safe to prescribe distance in this respect, for such must ever be ruled by not only the strength but the position of the branches, so that the bunches cannot be expected to be placed with any particular precision; much must be left to the discretion of the cultivator. We need scarcely observe that the young vine shoots are amazingly benefitted by being kept trained close to the wall, fence, or roof. The heat absorbed by the body against which they are trained is of much benefit in the way of acceleration. We will venture to affirm that lightly-dressed and close-trained vines in any part of the united kingdom, will ripen both wood and fruit a whole fortnight before those which are untrained; and our climate is such, even in the southern counties, that every ray of sunshine is requisite in order to obtain the very highest amount of flavour in the fruit, and well ripened wood for the ensuing year, on which not mere habits of fructification alone depend, but also that free and speedy development of the young bunch in the ensuing spring, which hastens the necessary processes betimes—every part or organ being duly prepared beforehand to perform its necessary functions. Let us, therefore, be understood as urging that this is no mere theoretic view of matters; let any one try the experiment of well dressing and of neglect on two vines respectively, and he will be for ever convinced.

ROOT CULTURE.—Little can be said on this head, for, in general, little is required. We may remark, however, that if severe droughts occur any time between the first and second swelling of the fruit, that watering will prove of benefit, provided it is well known that the soil they are in is of a truly porous character, that is, not too retentive of moisture. It is seldom, nevertheless, in Britain, that the vine out of doors is watered: seldom that it requires it. In our southern counties it is very common to meet with vines, trained against houses, of a very considerable age, and such, having borne crops for many years, would be greatly assisted by watering, especially if any fertilizing matters can be blended with the water. It is in everybody's power to apply soapuds to vines, and a very good service this material renders, provided, as before observed, the porosity of the soil and the drainage can be relied on. It is well, however, to apply a coating of rotten manure previously: on this the watering may be applied; it will prevent the battering or puddling action of the water, and furnish to the vines a nutritious fluid in combination with the soapuds.

We may close our remarks, for the present, with a

good piece of advice with regard to out-door vines: *Be sure to keep them closely trained during the whole growing season.*

R. ERRINGTON.

THE FLOWER-GARDEN.

ROUTINE WORK.—The principal work now to be attended to in the flower-garden is to keep every part neat and trim. *Perennial flowers*, as they go out of bloom, must have all the old flower-stems neatly cut down, the old large decaying leaves removed, and the soil stirred with a small fork, to let in the rains to the roots. *Annual flowers* require sticks of various kinds and lengths to support them. Such as have done blooming should be pulled up and removed to the rubbish heap. Excepting particularly fine varieties, we do not recommend saving seeds, because annual plants in seed are very unsightly; because this business is much better done by the regular seed-nurseryman; and, lastly, because the seedsman sells annually so cheap that it is no economy to our amateur friends to disfigure their flower-plots by allowing annual flowers to stand till their seeds ripen. Our cottage friends, it is true, are not so able to purchase seeds, however cheap, and so they may let a patch of each kind remain till the seed is ripe.

BIENNIALS.—Prepare a bed in some open part of the garden, by digging and raking, to transplant biennials into. By transplanting them whilst young they will make nice bushy plants close to the ground; and will, in such a condition, be more able to endure the frosts of winter. The soil into which you transplant them should not be enriched with any manure. If it is of a heavy nature, a coating either of quick-lime or of some finely sifted coal-ashes would be of great use. Your biennials should be planted thinly, to allow them room to make stocky plants. It is much better to have one dozen of good plants than twice as many middling ones. Should any of them grow up with a single stem, and show no tendency to branch out near the ground, nip off the centre shoot near to the ground. This will cause them to branch out freely, and make plants that will, when the flowering season arrives, send up numerous spikes or heads of flowers.

CHRYSANTHEMUMS.—Those intended to flower in the open borders or against walls should now be in their flowering situation. In the borders, put stakes to them by the time they have attained a foot high; against walls, keep them thin of shoots, and nail them to the wall as soon as the shoots are long enough. During dry weather, give abundance of water, applying it in the evenings all over the plants. They are gross feeders, and, to have fine large heads of flowers, must have plenty of rich food. Mulch them with short rotten dung, and water once a week with liquid manure.

CHRYSANTHEMUMS FOR BEDDING.—In the southern counties, to succeed such flowers as tulips, ranunculus, and anemones, these plants are very suitable. The only objection that can be urged against them is the height they grow, but that objection may be obviated by pegging them down with hooked sticks. Plant them so near each other that the shoots of each, by the time they flower, will reach to the centres of their neighbours, so that the bed will be completely covered with flowering shoots. Managed judiciously in this way, they will form a fine feature of the autumnal flower-garden. Chrysanthemums are not half so much grown for ornamenting the flower-garden as they deserve. We trust our readers in the more

favoured counties will give them a trial for out-door cultivation. We guess our friend and excellent co-adjutor, Mr. Beaton, will give these fine flowers a strong lift shortly, for window and greenhouse purposes.

HOLLYHOCKS.—This is another fine tribe of autumn flowers. If they have been properly managed so far in the season, they will now be pushing strongly forth their flower stems. Let them have a stake of sufficient length and strength driven in pretty close to *each* stem. Let the stakes be made quite firm and perfectly upright. The flower stems and the blooms on them are, if well grown, of considerable weight, therefore they ought to have good stakes, and a strong material to tie them with. Now, any kind of twine is rather apt to cut the stems; we prefer, in consequence, stout broad strands of bass matting, as not being so liable to injure the stems during the stormy winds of the equinox. This operation of tying ought to be commenced early, and followed up regularly till the hollyhocks have attained their highest altitude, or at least till they have reached the top of the stakes. We do not think it needful nor yet desirable to have the stakes so tall as the plants will grow. If they are well secured three-fourths of their height, it will be amply sufficient.

THE LAWN.—After such dry hot weather as we have had lately, the grass-plots will, especially if newly-laid, suffer for want of moisture. If you have plenty of water and plenty of time, let that nourishing element be poured upon the lawn freely. Should any cracks appear, fill them up with some finely-sifted soil. Roll previously to mowing—it will save the edge of the scythe or of the mowing machine. Mow early, if the scythe is used, before the dew evaporates, the grass being then more tender, and consequently more easy to mow; besides, the labour is not so much felt by the operator in the cool morning air. The sound of the scythe should never, in well-managed gardens, be heard after breakfast time. Finish the mowing, then, before that pleasant meal, and return refreshed. Then sweep the grass up, and convey it away either to line a hotbed or to decay amongst soil in the compost-yard. Trim the edges of the walks and flower-beds, and remove all the rubbish into the compost-yard. When this is completed, the flowers neatly tied up, and the beds and borders hoed and raked, your garden will have that freshness and trim appearance so pleasing to the well-ordered mind.

FLORESTERS' FLOWERS.

AURICULAS AND POLYANTHUSES.—Continue to gather the seeds in the manner directed in the last number. As soon as they are all gathered, pot the seed-bearing plants, and place them among the rest. Water regularly in dry weather. You will find the polyanthus, and its kindred family, the double primroses, much benefitted by having saucers put under each pot. The water that runs through the soil may be allowed, in dry weather, to remain in them till it dries up partly by evaporation, thus supplying moisture to the air about the plants, and partly by being taken up as food by the roots of the plants. The only precaution, to prevent possible injury to the roots, will be to turn the saucers in very continued wet weather. By using these pans, or feeders, or saucers (they are called by all these names), you will prevent, in a great measure, the attacks of that (to these plants more especially) destructive insect, the red spider.

CARNATIONS AND PICOTEES.—Stir up the soil on the surface of the pots, and remove part away, re-

placing it with fresh compost. Continue to propagate by layering the shoots as soon as they are long enough for that purpose. By doing this at an early season, the layers make roots early, and can be taken off and potted so as to be strong, well-established plants early in autumn, a matter of no small importance to enable them to pass through the winter in good health, and thus be ready to start with renewed vigour to grow finely in the spring, and finally to produce their beautiful flowers at the proper season in the highest possible perfection. The other needful operations are to attend to the tying them securely to the stakes, and to take care that the ties do not injure the stems; also to thin the buds freely. If the stem is weak, leave only one bud upon it; if strong, three may be allowed. Nothing is gained by leaving more, especially if you want them for exhibition purposes. The *red spider* sometimes attacks the leaves, causing them to turn yellow. As soon as you observe this, syringe them freely every evening until you banish the insect from your plants. The *green fly* is another enemy to contend with. The best and most effectual destructive for them is to crush them with the finger, and then wash the stems and buds with a nice soft sponge. Lastly, attend to the watering. Let them have plenty during dry weather. If your plants are weak, use weak manure-water once every ten days. This will not only strengthen the plants, but also heighten the colours; to preserve which, shade whenever the sun shines.

DAHLIAS.—If these plants have been well nursed, they will now be growing away freely. As they, like the chrysanthemums, are gross feeders, they will require in such hot weather as has prevailed lately abundance of water. A coating of rotten dung spread about each plant will be highly beneficial. Keep them well tied in to the stake. Thin the flower-buds, and cut off any undergrown straggling shoots that may deform or injure the general appearance of the plants. Hoe and rake frequently to keep the surface fresh.

T. APPELEY.

GREENHOUSE AND WINDOW GARDENING.

CHINA AZALEAS that have been kept close since they ceased flowering will have their young wood well ripened, and, in most cases, their flower buds are now formed. It requires a long practice to know for certainty when these have "set their flower buds," as the gardeners say, whereas any one can tell when the camellia is set for flower. The best criterion for ascertaining the existence of the azalea's flower buds is when the points of the young wood made this season feel hard between the forefinger and thumb. When that is the case, but not sooner, the plants, or rather the pits or other places where they are now growing, may be kept more dry and airy. By-and-by you will find, by feeling them gently, that the points of the young wood are become knotty and full, hard and prominent, and generally this stage is arrived at, even with the latest, by the end of July; while others, that were gently forced into bloom last February and March, had their growth done, and their flower buds well formed, before the end of May—May and June being the proper time to force these azaleas, as well as the camellias; and, moreover, there is not a shade of difference in the general management of the two families. The azalea will stand more heat to force

the flower buds to open in the dead of winter, and they require more sunlight than the camellia while they are making their growth. These two points are the only shades of difference that I know of in the regular treatment of these plants. It is true that they grow in soils of a very opposite nature, but that does not affect their general management. Now, then, is the proper stage, when the flower buds are set, at which China azaleas should be potted. I was well high saying the natural time, only in a state of nature plants are not potted at all. This is one point in which they very closely resemble the camellia: young healthy vigorous plants of either family may, and very often do, grow too freely if potted in the spring, and so do not furnish blossom buds at all. This habit is sometimes made the most of with young plants, when it is wished to drive them on at a rattling pace to make good large specimens, and then their flowers are a secondary consideration, for they are potted in the spring, and also at the end of summer, and this certainly does make the greatest difference as to the time they take in coming to a respectable size, but with gardeners the outcry is that they grow out of bounds too fast. Therefore, examine now any young plants that were bought in while in bloom, and, if their roots appear freely occupying the outside of the ball, you may safely give them a small shift, even if they were potted as late as last April, and so with any of your own stock. Once a year is quite often enough, however, to shift plants of ordinary size, and the end of July is certainly the best time for this annual shift; while large specimens, arrived at full maturity, need not be potted or boxed (they do best in wooden boxes when they are old) but once in three or four years. We have a fine old plant of the original white China azalea, which has been in the same tub since the summer of 1842. I shall not say how large it is either way, for people are prone to say that we poor gardeners sometimes indulge in drawing the long bow; suffice it, therefore, to say that it is as healthy as any mandarin need be, and promises to last in good health as long as the tub stands. After he sets his flower buds he is encouraged with liquid manure for the rest of the summer, and also in early spring when the buds begin swelling, which they never fail to do early in February, for the plant, by a long course of culture, has acquired a second nature; and, although it is kept in a cold shed all the winter, it never fails to be in bloom by the first or second week in March, if taken into the conservatory three weeks before it is wanted to be in blossom.

I have read of two or three kinds of mixtures for potting these azaleas in, and when I was a younger gardener I used to try experiments that way with them myself; but I am quite satisfied they succeed in nothing so well as in pure peat, and the better it is the more luxuriant they will grow, but they will do pretty well in any ordinary peat, or such as heaths will not succeed in, provided they do not get large shifts—that is, are not moved into pots or boxes three or four sizes larger than those they are growing in at the time of shifting. Like all other plants, a good drainage is required by them; and it is a good plan to mix some pieces of soft stone, or corks, or charcoal, in the compost for them, to keep it more open, because peat is very apt to run too much together, and get so close that water can hardly pass through it, even if it had been used in a rough state in the first instance. Of all the substances that have been recommended for keeping peat mechanically porous, I prefer chips of soft stone, and charcoal for

loam. For giving richness, as well as for porosity, to loam, I prefer rough bones, but prejudice may have something to do with this, for all seem now agreed that charcoal is best. Yet I do not believe that one word of what has been urged with respect to the fertility of charcoal in pots may not apply to pieces of soft stones, or crockery, equally as well; and, as I said before, whichever of them you think the best will be sure to turn out the best.

After potting, the plants ought to be kept in-doors or in a close pit, for the first ten days or a fortnight. This will encourage the roots to work more freely into the new soil: when once established in the new pots, they should be turned out into a warm sheltered situation, facing the sun, till the end of September. The pots ought to be placed either on a bed of coal ashes, or on bricks, slates, or boards, to facilitate the drainage, and to keep out worms. To prevent the azaleas being blown about with high winds, a couple of stakes ought to be driven down by the side of each pot, and opposite to each other. The head of the plant being firmly tied to these stakes, and pulling it each way, will cause it to resist the wind much better than if only one stake is used, and all the care they require after this is to see they do not want for water. If August should prove dry or hot, I need hardly say how much benefit they would derive from the excellent plan of double potting.

Those plants that are to flower before Christmas ought to be put under glass, and kept rather close and warm, from the end of September, but the late spring flowering ones will do better out of doors, as long as it is safe to trust them to the weather. Such as are indulged with summer forcing, as above, are liable to be injured in their flower buds by early frosts. I have more than once seen the bad effects of trusting them out too late in October, and I have had them and camellias safe enough in the open air till a week or two before Christmas, during a mild season. Hardy greenhouse plants like these, when they are young, ought always to be put under glass by the first week in October, and, for such, a cold pit is the fittest place late in the autumn, because, when a fine day or a mild night occurs, the glass may be drawn off from them. This will prolong their summer season, as it were, but when they arrive at a good size and age they may always be trusted out later.

I once knew a very good and successful gardener, who put great faith in having his large woody greenhouse plants out of doors as late in the autumn as the season would allow; thus giving more space to the small stock and more tender plants when first housed. He had a range of large open sheds, where he would have these more hardy plants removed to on frosty nights, and he used to say, "if we escape frost on the third week in September, and from the 10th to the 15th of October, we may enjoy, possibly, six weeks fine open weather after that, and all that time may be stolen from the winter for our hardier plants."

These China azaleas, if once inured to the open air, and reared in very poor sandy peat of no great depth, over a dry bottom, are just as hardy with us as the Portugal laurel. It was only a few years back that I had four nice plants of the old white exposed here (Shrubland Park) to 30 degrees of frost. Indeed, the mercury stood below zero one morning that winter, yet not a leaf of those azaleas was even browned. I ought to say, however, that they were left, two years previously, out of a lot that were put in by the heels—as gardeners say when they merely

lay down plants and throw a little soil over their roots: and their annual growth did not exceed two or three inches, but they were fully exposed to the north east, and behind a wall. Any cold greenhouse, or good pit, will winter them, and they must never be allowed to get quite dry in winter, like many plants at rest. Indeed, I cannot bring to mind any greenhouse plant grown in heat that will stand that with impunity.

There is a wide field yet open for crossing these azaleas. Beautiful though they are, and admired by every one, they are yet very deficient in the shape and substance of their flowers. We have nothing yet in shape among them to compete with the *A. variegata* from China. The substance of the petals of some of the new seedlings gives great promise, and shape will no doubt follow; but as their season is over for this year, we may as well treat of some other flowers which may yet be crossed.

HYBRIDIZING.—About this time *geranium* fanciers will be preparing to sow seeds of them for new varieties, and here we are only preparing to crop them to get our seeds, but we are in good time yet. The late-flowering plants always yield the best seed; and many a geranium that refused to take strange pollen last May, will now yield readily enough if we keep them indoors. *Roses* that have pollen are ten times more difficult to cross than any geranium—as the pollen of many roses is ripe as soon as the flower opens. It is not so with the geranium, however; the anthers in them never open before the flower, and then they may easily be cut off. Some geraniums are fit for the pollen the same day the flowers open, others not till the next day, while a third set are three or four days open before the stigmas are ripe. But hot dry weather ripens them faster than is natural for them, and, when that happens, some of them are more reluctant to yield to foreign pollen. Others, again, that are shy bearers, will readily yield seeds if they are kept very cool and out of the sun from the appearance of the flower buds till the stigma is ripe, and are then introduced either to a warm window or greenhouse while the pollen is effecting its purpose.

D. BEATON.

STOVE AND HOTHOUSE.

PLANT STOVE.

ACHIMENES.—In small gardens, where the stove is made to contribute not only to its own embellishment but the adorning of the greenhouse and sitting-room during the summer, few races of plants can present greater claims to the attention of the amateur than those included in the natural order of gesneraceæ. This statement will more particularly apply to those plants possessing bulbous and scaly tubercles, such as the *gloxinia*, the *gesneria*, and the *achimenes*, as they contain the following desirable requisites: they are easily cultivated; when well grown they are splendid in appearance; when brought into bloom they will stand in any place under glass, partially shaded, until late in the autumn; they can be made to bloom at almost any season; and, finally, when done blooming and the leaves decayed, the tubers may be kept in a dry condition in any out of the way place, provided the temperature does not fall below 40°.

We shall, for the present, confine ourselves to the genus or family of achimenes. This genus, like others of the gesneraceæ, belongs to the fourteenth class

and second order of Linnæus's system. All the species and varieties have scaly tubers. The blossom of the most of them is showy, monopetalous, and tubular, the corolla being divided into five more or less irregular segments.

ESTIMATE OF SPECIES.—The *A. coccinea* was, until of late years, almost the sole type of the genus. It was then known under the titles of *Cyrtilla pulchella* and *Treviranica coccinea*; both of these generic names were given in honour of continental botanists. I cannot be sure of the reasons why the generic name was altered to achimenes. The *coccinea* still maintains its high claims upon our attention, from its compact bushy growth, and its abundance of small but brilliant scarlet flowers. *Rosea* and its varieties are similar in size and habit. These are joined by *grandiflora*, rose-coloured; *longiflora*, light blue; and *patens*, deep purple: all of which, with their varieties, have large showy flowers, the segments of the corolla presenting a nearly flat surface, the long narrow tube acting in much the same manner as the footstalk does in other flowers. Then comes *picta*, or painted, alike applicable to its variegated foliage and red and orange blossoms. Here the segments of the corolla are small, and the chief beauty consists in a wider development of the tube and its beautiful markings; it is dwarf and bushy in its habits. *A. pedunculata*, so named from the long footstalk (peduncle) of the flower, is similar to *picta* in the form of its orange blossoms, but very different in habit, being strong and robust in its growth, and, when well attended to, forming a striking feature in the later summer and earlier autumn months. Similar in habit is *hirsuta*, but the flowers are too dull in colour. We refrain from going farther. All of these may be in bloom now, if the tubers were started in January or February. To have *pedunculata* fine, it must be started early, as it requires more time than any of the others. *Patens* comes soonest into bloom: tubers planted now will afford a fine display in autumn. *Coccinea* and *longiflora* will come in a little later; *picta* does best of all in the winter and spring months, as its leaves are impatient of bright sun. All the species are natives of warm latitudes in America.

PROPAGATION.—This can be effected by seeds, but, unless for obtaining varieties by hybridizing, it is not worth saving, as even the leaves root freely. Small tubers are formed in the axils of the leaves of many of them; and, in all, plenty of full-sized tubers are found beneath the soil when the plants have finished their growth.

STARTING INTO GROWTH.—Instead of placing the tubers into their intended blooming pots and boxes at once, it is better to place them in shallow pans, using any light soil, just slightly moist, and doing little more than cover them. A little damp moss placed on the surface will be an advantage. Very little water should be given before the tubers begin to vegetate, after which it may be given more freely. By this method you will be enabled to choose the strongest growing plants for the centre of your pots. A temperature of about 60° should be maintained, and, if early in the spring, a little bottom heat would cause them to come all the better.

POTTING.—Shallow pans or boxes will give you plenty of bloom, if well supplied with weak manure-water, but the plants will bloom longer and finer when grown in pots or boxes of the usual depth. A little earthing-up may then be given them at times. Attend well to drainage, and cover the tubers when planted about an inch with the compost. Instead of placing them all over the pot, which, when they bloom,

conveys nothing to the mind of the *gardenesque* or the *artistic*, place the requisite number of tubers—three, five, seven, &c., according to the size of the pot—with their growing ends inclining to the centre, and the root ends to the circumference of the pot, similar to the spokes in a carriage-wheel; and then your specimen, although not so in reality, will convey the idea of a single plant, and not look like a number of plants jumbled together.

SOIL.—This should be light and rich: three parts loam, three parts peat, one of leaf-mould, one of old dry cowdung, mixed together, riddled with a fine sieve—not to *use*, but to *discard* the finer particles—and then adding one part of silver sand and one of broken charcoal, will grow them admirably; placing the roughest part of the soil at the bottom, and covering the surface with the finer compost.

GENERAL TREATMENT.—Proportion the water to the state of growth. Where the roots have not reached, the soil must not be soaked. We shall have a gossiping upon watering by-and-by. The whole family like heat, partial shade, and a moist atmosphere, when growing. As the flowering state approaches, inure them to more light and a drier atmosphere; neglect to do this, and you may have fine plants, with clusters of tubers instead of blossoms. Nature, curbed in her efforts for reproduction one way, will attempt it by another. If you try them in dung frames, extra care will be requisite, as the foliage will be injured if the steam and sun meet. Shade and air are the only remedies, or rather preventives. When done flowering, and the foliage decayed, remove the tubers and preserve them in dry earth, or merely turn the pots on their sides. They must never know anything of frost. Those started early this spring must be so employed next season; the different successions should therefore be marked. I have found them extremely useful for decorating greenhouses, &c., during summer. In warm sheltered places some of them would even succeed for a time out of doors—such as the *coccinea* and *rosea*.

HOTHOUSE.

Here the usual processes of thinning, stopping, training, shading, watering, and stirring the soil, must be studiously persevered in, if you would steer clear of disease and shoals of insects. We shall shortly overtake everything in this department when once we fairly obtain elbow room. If in any corner you have a yard of glass to spare, either here or in the stove, try and obtain a late *melon* or two, either by sowing the seeds directly or, what is better, using plants already up. If the plant should have so many roots as to be pot-bound, do not turn it out, but make a larger hole in the bottom of the pot, and then set it half plunged on the surface of a larger pot, filled with rough mellow loam. Train to one or two shoots; stop these when a yard in length. Allow only a few laterals, from whence to procure fruit, and the produce will be far superior in weight and flavour to what could be obtained when the plants are turned out into pits and frames. R. FISH.

THE KITCHEN-GARDEN.

ROUTINE WORK.—Very little can be added to the directions already given for the present month, but care must be taken in getting out full crops of the best winter greens, brocoli, savoy, coleworts, &c., that the ground is always well mulched and watered. The first sowings of early cabbage may be made

about the third week in this month, and the last sowings of *beans*, *peas*, and *French beans*, as well as a few more *scarlet runners*, if there is any ground to spare. The dwarf growing, small, compact kinds of cabbage are the most desirable, both for the amateur and cottager, as they are quick in coming in, and take but little room. We confine ourselves to the *Matchless*, *Nonpareil*, *Shilling's Queen*, and *East Ham*; planting the two former at the distance of one foot apart each way, and the two latter at one foot three inches distance. We plant all these upon sloping banks, cast up as the trenching is performed, from six to twelve feet wide at the bottom, and from two to four feet high in the middle, the height being regulated by the staple of the soil. This width we find very convenient for the operations of hoeing, scarifying, and watering, as well as for collecting the dead leaves, &c.

Endive should now be sown in full crop for autumn salads, as well as *lettuce*, which may be sown in drills between the celery, and hoed out when up, or transplanted at thinning time if the weather is favourable. The last sowing of *parsley* may be made at any time within the next fortnight, as a late sowing of this vegetable will be found particularly useful in the spring and summer months, after the early sowing has run to seed. The early sowings of *parsley* should be well thinned and hoed, and liquid-manure pretty liberally applied. Chimney soot, as has been before observed, is a most stimulating manure for *parsley*, if applied in a liquid state, or sown over the crop in rainy weather. Fill up all vacancies that may occur by carefully transplanting. *Parsley* is a famous plant to remove and transplant.

MUSHROOM-BEDS.—Materials should now be collected for making a mushroom-bed ready for autumn bearing. Nothing is better calculated for this purpose than the excrement of animals, such as the horse, cow, sheep, or deer, with a good portion of fresh loam intermixed, so that a good healthy moisture may be kept up, and the mixture may not be suffered to lose any of its most essential properties by evaporation, a point which requires very strict attention. In mushroom culture, the first beds need not be made very thick in substance.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 35.)

IN gardens like mine there is now little to do. This is a season more of enjoyment than actual labour; for the flowers are blooming, or hastening into bloom, and the time for transplanting, &c., is over. The balm of Gilead, which is a very fragrant plant, may, indeed, still be increased by cuttings; or the seed may be sown, if that mode of increase is preferred. It is worthy of culture, as its aromatic sweetness, when the leaf is rubbed by the hand, is very agreeable. A bed of the common scarlet geranium is one of the most lovely and delightful ornaments of the simple garden. How fragrant they are, and how bright; and what an elegant nosegay is that which is formed only of their glowing blossoms and downy leaves—almost as highly scented as the flowers! If a sprig or two of the sweet-scented verbenas is placed among them, we need not desire the richest bouquet a hothouse can afford. This plant originally came to us from the

Cape of Good Hope, where they grow profusely. In India, too, they form thickets and jungles; and when rain has fallen, or when their rich foliage is beaten to drive away the wild animals that lurk among them, the perfume is said to be intense. The idea of a thicket of geraniums may well make an English lady sigh; for she looks at her flower-pots or borders, and how poor and scrubby they appear. Yes! such spicy groves are very lovely; but if we were among them they would be no enjoyment; such reptiles and animals inhabit them, such scorching sunbeams and noxious dews descend upon them, that no one can linger near them. We may take comfort in our own less lovely gardens, and be thankful that although our native land is not so barmy as those distant soils, it is one of far truer happiness. We can sit and inhale our own summer sweetness in peace and safety. It has pleased a God of mercy to divide His blessings among His children, and when He withholds one joy, He grants another. We have cloudy skies, chilly breezes, and a colder soil; but would any one of us barter one British blessing for all the geranium thickets of the East? Let us encourage these sweet plants as much as possible, as border flowers. I have seen them looking rich and beautiful, particularly when turned out of the pots, which enables the roots to spread freely; but then the blossoms were not so large or so numerous, on account of the luxuriance of the leaves and stems. There are many very beautiful hardy varieties that form a rich combination with the old favourite scarlet. The ivy basket may now begin to look gay, and reward us for the patience with which we have waited for it. Rustic stands, roughly nailed together, look extremely well when filled with flowering plants. They should be rather low, and the supporters placed so as to look as little as possible like the legs of a table. These things cannot be formed by a lady's hand, and, therefore, in many cases cannot be obtained; but where it is practicable they give great elegance to the garden, at little cost or trouble. The salvia is a sweet and elegant plant, either for the flower-stand or the border. The colours are so vivid, the crimson is so crimson, and the blue so blue, that they delight the eye; and their balmey scent is refreshing and agreeable too. In the open ground they look particularly well, if so managed as to fill a bed. Cut off the flower-buds for a little while, until you have pegged down the young shoots of the plant or plants, so as nearly to cover the bed; then let the fine spikes of blossom expand, and the effect will be splendid.

The fragrance of the lily of the valley has just ceased to greet us. What can exceed a bunch of these flowers for beauty, sweetness, and deep interest to the Christian heart. Their very attitude instructs us, for it shows forth so pointedly the beauty of humility, that the violet itself does not surpass it, and yet there is a dignity in their quietness that adds another charm. These exquisite flowers appear almost to be natives of one soil. In some parts of England they grow wildly; and in the neighbourhood of Newbury, in Berkshire, there are one or two spots where they abound in great beauty beneath the shade and shelter of copse wood. The vicinity of that town is remarkable for the variety of rare and beautiful wild flowers that bloom in the meadows and woodlands. It is a warm sheltered valley, and the grass and trees seem sooner green, and more richly clad there, than in any other part of the country. The lily of the valley might do extremely well if planted in the wilder parts of our gardens,

as well as in their sunny borders. Wherever the scythe is not liable to pass, and especially if the soil is cool and moist, they may at least be tried, and if content with their new residence, we shall acquire a very charming addition to our pleasure ground. Many spots in a cottage garden might be occupied with these plants, where, perhaps, other flowers do not grow well. Shady nooks and corners, which sometimes are suffered to be neglected, or filled with stones and rubbish, might become green and fragrant with these lovely flowers. Not an inch of cottage ground should be suffered to be idle. As with the heart, so with the garden. If any spot, however small, is left untillied, up springs an evil weed, or it becomes a wilderness. It is worth noticing how very soon this happens. Though "swept and garnished," yet, if left "empty," the house, the garden, and the heart, become defiled and ruined. Let us, then, plant with diligence and care the garden of the soil, but let us, with far deeper earnestness, seek the great Husbandman to dress and tend the garden of our hearts. The cottage, with all its usefulness and beauty, its plants and flowers, is but for a little while. Our home is "a house not made with hands, eternal in the heavens." Are we preparing for it also?

HORTICULTURAL SOCIETY'S SHOW.

JULY 11TH.

WITH the thermometer above 80° in the shade, not a cloud over the heaven's face, and a fresh breeze to refresh those whom the sun's rays otherwise would have warned to stay at home, we were prepared to see the large assemblage of the gay and the beautiful who were gathered together on this occasion, more especially as we knew that hundreds would be there, to stroll through the Duke of Devonshire's tasteful grounds, who cared but little for the plants and fruit beneath the Society's marquees. Our business, however, is with these plants and fruit, and we will commence by observing generally that all the plants and fruit looked more bright and "hearty" than at the two previous shows of the year, affording evidence, if it were needed, that nature is a better gardener than man even sustained by all that art and science can supply. The tropical temperature and the tropical light, for which art can afford no substitute, had brought the full tints of health upon the complexions of the plants.

We shall this week give only some brief notices of the specimens exhibited, intending to fill up the account more fully in a following number.

Of the new and rare plants some were highly interesting.

The silver gilt medal was awarded to Messrs. Veitch, nurserymen, of Exeter, for *Cycnoches batatum*, a most curious and interesting plant to the lovers of orchids.

The next prize, the certificate of excellence, was awarded to Messrs. Rollison, of Tooting, for a fine plant, *Metrosideros robustus*, with good foliage, and curious fine flowers of a crimson hue, having the appearance of a bunch of scarlet bristles. For adorning a large conservatory, this will be a valuable addition.

The next prize, the large silver medal, was awarded to Messrs. Veitch, for a variety of *Cypripedium batatum*. The silver Knightian, to the same firm, for an interesting and beautiful species, a *Ruellia*, not

specifically named, from Peru. The silver Banksian medal, to Mr. Iveson, gardener to the Duke of Northumberland, Syon House, for *Espetelia argentea*, a greenhouse plant, with beautiful large silky foliage and yellow flowers. Certificates of merit were awarded to Mr. E. Henderson, of the Wellington-road nursery, for a new trailing border plant, with red flowers, suitable for bedding purposes, named *Abronia umbellata*, a native of California; to Messrs. Veitch, for *Cephalotus foliolarius*, the new Holland pitcher plant, in flower, the pitchers being round the base of the stem; also to Messrs. Henderson, of the Pine-Apple-place nursery, for *Achimenes gheisbrigitii*, with bright orange-scarlet flowers—a fine species. The same gentlemen sent a new *Gloxinia*, named *G. grandis*, the best shaped and finest coloured species we have yet seen; every grower of gloxinias ought to have this plant. We also noticed a fine hybrid, *Maurandia emeryana*, said to be a cross between *M. barclayana* and a *Lophospermum*, a most desirable free-flowering variety, from Messrs. Fairbairn. Mr. Cole, gardener to H. Collyer, Esq., of Dartford, had a new *Columnea*, with short reddish flowers, produced abundantly from the axils of the leaves.

Of seedling *Petunias* there were several new varieties of great merit. Messrs. Henderson, of Pine-Apple-place, sent six which obtained a prize; the best of which were named respectively *King of Purples*, a large good shaped flower, of a good colour, very suitable for bedding; *Count Zichy*, a rose colour, with a white throat and good form; *Equisita*, a light ground with rose stripes, a fine large good shaped flower. Mr. Salter, of the Versailles nursery, Hammersmith, sent a fine petunia, amongst several others, named *Magnificent*, a deep rose, worth having. Mr. Gadd, gardener to F. Lennox, Esq., of Stamford, had *Petunia Great Britain*, a large, somewhat thin, lilac flower. Mr. J. Bopp, nurseryman, Balls Pond, Islington, had a large flowered variety named *Regina*, of considerable merit, with a white throat and clouded petals. Mr. E. Henderson sent a seedling petunia named *Julio*, with striped flowers, most abundantly produced, covering the plant completely; this will be a desirable variety to cultivate in pots. Messrs. Davies, nurserymen, Wavertree, sent a semi-double petunia of some merit, worth cultivating.

FUCHSIAS.—Mr. Salter had one named *Corymbiflora alba*, which, if better grown, will be a good variety; it has a white tube with a rosy corolla. *Firebrand* came from Mr. E. Henderson; it has a white tube, reflexed petals, and a bright carmine good-shaped corolla.

VERBENAS.—*Madame Buzend*, a desirable variety, in the way of *Princess Alice*, was exhibited by Mr. Turner, florist, Slough; it has light petals, of good form, and a deep rosy eye.

PLUMBAGO LARPENÆ was sent by Mr. Green, gardener to Sir E. Anthonis, in very good order, being numerously covered with its beautiful blue flowers. Mr. Green had also a single specimen of that new bedding-out plant *Zauschneria californica*, a plant two feet high, with scarlet-orange tube-shaped flowers; for the autumnal flower-garden this plant is useful.

CALIFORNIA PLANTS.—An interesting group of these plants was exhibited from the Society's garden. We are given to understand these are all perfectly hardy, and in that case will be a valuable addition to our flower-garden and shrubbery. They comprised—*Adenostoma fasciculata*; *Abronia umbellata*, in flower, a perennial; *A. pulchella*, shewing for flower, also a perennial; *Ceanothus cuneatus*, *C. dentatus*, *Castanea chrysophylla*, *Ceanothus integrifolius*, *C.*

papillosus, *Cupressus govenianus*, *Cerasus illicifolius*, and *Calycanthus macrophyllus*, eight evergreen shrubs; *Impatiens repens*, a creeping yellow balsam; *Mimulus tricolor*, apparently a perennial, flowers with a pink ground and oblong dark crimson spots, small but produced abundantly—a very pretty species; *Myrica californica*, a shrub; *Laurus regalis*, also a shrub; and *Penstemon azureum*, a perennial, about 18 inches high, with deep blue flowers—very fine and desirable.

The Horticultural Society received these Californian plants from Mr. Hartweg, and have already distributed a considerable number amongst the members; nurserymen that are members receiving their due share. Mr. Glendinning, of the Chiswick nursery, exhibited several of them much larger than any of the above, having grown them in heat to hasten their growth. Amongst his lot was a fine plant of *Chelone centranthifolia*, the true species, with flower-tube of glowing scarlet.

Messrs. Veitch had again their fine plant called *Mitrorhia coccinea*. A prize was awarded to it. This, also, is said to be a hardy shrub. We have already noticed it in a former number. They also exhibited two plants of a variety of that fine hardy tree *Cryptomeria japonica*. This variety has a more dense foliage and more numerous branches than the well known species. The last new plant that we consider worthy of particular notice, is a new variety of the esteemed *Heliotrope*, sent by Mr. Salter, and named *H. Grisii*. It is evidently a hybrid between the old *H. Peruvianum* and the new *H. Voltairianum*; produces large heads of flowers, very fragrant, and each flower much larger than those of its parents. We consider this a desirable variety, and predict it will soon be in general cultivation.

COLLECTIONS OF THIRTY STOVE AND GREENHOUSE PLANTS.—The first prize, the certificate of excellence, was awarded to Mr. May, gardener to Mrs. Lawence, of Ealing Park. This collection was put upon the stage in its usual style of excellence. We can only find space to mention such as have been used to replace those that were out of condition to exhibit again; and we would suggest to the exhibitors, for this and other prizes, to strive for more variety at the different exhibitions. However fine and well-grown plants may be, the public will be tired of looking at and admiring the same individual plants from show to show, and year after year. There are plenty of new fine plants in the nurseries to take the place of worn-out specimens and poor species.

The most showy plant in Mr. May's collection was *Kalosanthes coccinea*, a plant 4 ft. high by 4 ft. through; also *Kalosanthes nitida*, equally fine. These plants are better known to gardeners, generally, by their old family name of *Crassula*. *Schubertia graveolens*, a white sweet-scented species, 6 ft. high by 5 ft. diameter; *Roebia ciliata*, 1½ ft. by 2 ft., a capital well bloomed plant; *Dipladenia crassinoda* had 26 expanded flowers upon it; a most elegant plant; *Rehmania speciosa*, a low dense bush, covered with its bright yellow blossoms.

Second prize, the large gold medal, to Mr. Cole, gardener to H. Collyer, Esq., Dartford. This collection certainly improves. Every plant was a picture of freshness and health. It must have been a neck-and-neck race between those two able cultivators, this time more than ever.

Mr. Cole had also a good specimen of *Kalosanthes coccinea*, a more dwarf plant than Mr. May's, but equally well bloomed, 2 ft. by 2½ ft.; also *Schubertia graveolens*, 4 ft. by 3½ ft.; *Frica ampullacea*, 3 ft. by

2 ft., a finely bloomed plant; *Erica parmentiera*, 2 ft. by 2½ ft., densely flowered; *Clerodendrum kempferi*, with two large spikes of fine rich-coloured scarlet flowers.

COLLECTION OF FIFTEEN STOVE AND GREENHOUSE PLANTS were exhibited by three parties. First prize, gold Knightian medal, to Mr. Green, gardener to Sir E. Antrobus, Bart., of Chesham, Surrey. Mr. Green is well known to be one of the most skillful cultivators of plants of the day, and he well sustained his reputation on this occasion. We have only space to mention a few of the best of the collection.

Leschenaultia formosa, 2 ft. high by 3 ft. through, a plant completely covered with its pretty scarlet flowers; *Leschenaultia baxterii* major, the same size and quality; *Erica jasminiflora* alba, 2½ ft. by 3½ ft.; *Dipladenia atro purpurea*,—this difficult plant to grow and flower was shown in excellent health and full of flower; *Allamanda grandiflora*, 5 ft. by 3½ ft., an excellent species, with bright orange coloured flower; *Sphenotonia gracile*, the *Dracophyllum* gracile of other days, a good specimen, 2½ ft. by 3½ ft. Second prize, gold Banksian medal, to Mr. Taylor, gardener to J. Costar, Esq., Streatham. This collection was very little inferior to the last: the best plants in it were *Polygala cordifolia*, 3 ft. by 2 ft.; *Polygala oppositifolia*, 4 ft. by 3 ft.; *Ixora crocata*, a low bushy plant, with five heads of flowers; *Dipladenia crassinoda*, with 24 blooms fully expanded; and *Allamanda cathartica*, 5 ft. by 3½, in good flower.

COLLECTION OF SIX STOVE AND GREENHOUSE PLANTS.—Several collections of six were shown. Mr. Jack, gardener to — Lorraine, Esq., of Wallingford, obtained the first prize, silver gilt medal. He had a good *Kalosanthes coccinea*, an *Allamanda cathartica*, and a well grown *Clerodendrum*. Second prize, certificate of excellence, to Mr. Bruce, gardener to B. Miller, Esq. He had a good *Erica metuliflora*, *Kalosanthes nitida*, *Stephanotes floribunda*, and *Sollya linearis*. Third prize, large silver medal, to Mr. Glendinning. A fine specimen of the new *Hoya imperialis*, with its chandelier-like blossom, was in this collection, and several nice low bushy heaths.

COLLECTIONS OF TWENTY-FIVE ORCHIDS.—First prize, large gold medal, to Mr. Mylam, gardener to S. Rucker, Esq., Wandsworth. His collection, as usual, was exceedingly rich, well grown, and finely flowered. Our space forbids us to do more than just notice a few of the best.

Saccolabium guttatum, four spikes. *Vanda Batemaniana*: this truly noble plant had this year but one spike of its magnificent flowers, with crimson spots upon a yellow ground, the back of the petals and sepals being of the finest rose-colour. *Phalaenopsis amabilis*, fourteen fully expanded flowers on one spike. *Aerides odorato*, thirty-six spikes, a noble large plant. *Calanthe masanca*, a rare species, had twelve spikes. *Aerides maculosum*, a fine, well-flowered plant.

Second prize, gold Knightian medal, to Mr. Williams. This collection was marked, as usual, by superior cultivation; as, for instance, the fine plant of *Phajus albus*, bearing seventeen spikes of its beautiful white flowers. *Aerides affine*, with one spike with five branches, and four other spikes, several of which were branched likewise. *Barkeria spectabilis*, a large mass with five spikes; *Saccolabium guttatum*, four spikes; the rare *Epidendrum verrucosum*, with a spike of seven flowers.

COLLECTIONS OF TEN EXOTIC ORCHIDS.—These collections were numerous. First prize, gold Knightian

medal, was very deservedly awarded to Mr. Plant, gardener to S. Schroder, Esq., Stratford Green. His best plant was *Aerides maculosum*, with two splendid spikes; *Aerides affine*; *Cycnoches chlorochilum*, with two long spikes of its bright, fragrant, and swan-like flowers.

Second prize, gold Banksian medal, to Mr. Dobson. He had a good *Cattleya crispata*, with a spike of six flowers; the rare *Epidendrum vitellinum*, and *Epidendrum Phoeniceum*.

Third prize, silver gilt medal, to Messrs. Rollinson, of Tooting. This collection was chiefly remarkable for having in it an immense mass, scarcely in bloom, of *Miltonia spectabile*.

Fourth prize, large silver medal, to Messrs. Henderson, of Pine-apple-place. This lot had a finely flowered *Stanhopea quadricornis*, with numerous flowers; also *S. Tigrina*, with six of its strange, monstrous looking blooms.

Fifth prize, silver Knightian medal, to Mr. May, gardener to Mrs. Lawrence, of Ealing Park. A good *Phalaenopsis grandiflora* was in this collection; also a large mass of *Sobralia macrantha*, the flowers of which were sadly spoiled by carriage.

Having thus briefly noticed the collection so far, we have only space now to just glance at the remainder.

HEATHS were numerous and in good order, showing that care and skill can overcome adverse seasons. The hot weather, for instance, that we have had lately.

PELAGONIUMS were evidently on the wane, there being fewer shown, but those few were in good condition.

CUT ROSES.—In this class of flowers there was plenty of competition, and the flowers were up to the mark, but the hot day and close tent soon took effect upon them, causing them to droop very early in the afternoon.

CARNATIONS AND PICOTEEES exhibited in excellent order, and kept fresh to the last moment.

TALL CACTI were very much shortened both in quantity and height, yet some were neat flowered, well grown, plants.

FRUIT.—A large number of good pines were exhibited; some good black grapes also; but Muscats, though fine fruit, were far from being ripe. Peaches and nectarines were scarce; strawberries and cherries excellent in quality and abundant in quantity; melons were rather scarce and not first-rate, though the weather has been just the thing for ripening this fruit.

Looking through the exhibition as a whole, we should say it was, on an average, equal to the former July meetings. There was certainly no decided improvement. Let us hope that the council will increase their prizes, and the gardeners increase their exertions, so as to make those meetings what they ought to be—an example of the highest skill in horticultural matters. But we shall have more to say on this and other topics next week.

TO CORRESPONDENTS.

N.B. A multitude of letters are unavoidably left unanswered until next week.

PLANTS FOR THE CITY (*A Citizen*).—You will find full directions as to the best mode of growing these in windows, at page 288 of our first volume; and a list of such as will best grow in town gardens at page 36 of the present volume.

ASPHALT (John Lewis).—You are mistaken. The recipe is that for making "A SMOOTH BOTTOM FOR A POND," at page 259 of our first volume.

RHUBARB (Subscriber).—This putting forth seed stems has nothing to do with your having pulled off either few or many of its leaves. To produce seed is every plant's "being, and end and aim." Cut down the flowers-stems as soon as they appear. We cannot name rhubarb seedlings which we have never seen. If you consult our book numbers, you will find full directions for the culture of this vegetable. The roots must not be taken up at all and divided, that you require to produce your own seed. For propagation, the offsets, each having a bud on its crown, may be removed as soon as the leaves are all dead in the autumn, but this ought not to be done before the parent root is three years old.

STRAWBERRIES NOT SETTING (Ibid).—There are many causes, any one of which may have been the origin of this. The beds may be only the soil may be too poor; you may not have watered sufficiently, for "several times" is often worse than no watering at all. If you once begin watering strawberries, and thus encourage luxuriance and abundant transpiration, you must sustain that habit, or the plants will die off during continued dry weather. You will find full directions for growing worms at page 92 of the present volume; and how to make a mushroom bed at page 70 of our first volume.

GERANIUM PROPAGATION (A Constant Reader).—Please to look at page 147, where you will find directions for increasing them by cuttings. All varieties are propagated in this manner.

ERANTHUM (A Beginner).—At page 134, col. 1, Hiee 22 from bottom, read *acutatus*. The other to which you refer is merely the name assumed by a correspondent.

POULTRY (Rusticus).—Your chickens moping about by themselves with drooping wings, and having colds, are probably affected with *Coryza* or *Chen*, a name applied on account of the weak plaintive cry resembling this monosyllabic which they utter. Allowing them to go out from the coop before they are a month old is said to be the cause, so that they get worms, &c., not wholesome for them. Remove them into a warm, dry place. Thick ground, or mint, mixed with a teaspoonful of castor oil and half a teaspoonful of syrup of ginger, is said to be a good mixture for chickens thus diseased, giving to each a teaspoonful daily. Crushed fresh oat grits is the best food for them, and the water they have to drink should be warm.

POR PORRA (A Subscriber from the beginning).—We shall be obliged by a good recipe for this. Your question about cut flowers is answered editorially.

PICOTEES IN BORDERS (L.).—You may move these, and divide their roots, either at the end of October or of March.

IRIS GRASS (Ibid).—*Andropogon* is also known as *Ladies' Tresses*, *Irish Grass*, and, according to your note, as *Irish Grass*, is the *Arrando dianus*, var. *versicolor*. It is a native of the south of Europe, and requires no particular cultivation. It is benefited by being cut down in November close to the ground, and a heap of coal ashes being placed over it to exclude the frost.

REMARKS (S. Berkeley).—It is always best sown where the plants are to remain to produce their leaves for use. Do not let them stand nearer to each other than four feet. Beds for rhubarb should always be trenched deep, and abundance of manure mixed with the soil. Soil for the growth of plants, valued only for their leaves, cannot be too rich. You may give liquid manure until the leaves begin to decay in the autumn. The "idea in your neighbourhood" that all the leaves should be pulled off when full grown, is a gross error. Six or eight full grown leaves from each plant is the most that should be pulled in one season. Leaves have to prepare for next year's growth. The stools do not need any protection beyond a little earth over the crowns in winter.

TYING DOWN PEAK TREE SHOOTS (H. Snaford).—This is done to enable the young wood to ripen better, by their not overshadowing each other.

CRIPPING FRUIT BORDERS (Ibid).—No rule is more worthy of implicit obedience than—avoid all cropping of fruit borders. But where your borders are six yards wide you may crop the four yards furthest from the trees, but with tall-growing plants that will overshadow these. The other two yards should be uncropped, and trodden upon as little as possible.

INCREASE OF SIZE (W. Magon).—We never had any intention of increasing either the length or breadth of our pages, but only their number.

COAL ASHES (A Disciple).—These are a most excellent manure for heavy lands, for they improve its staple. They do not render potatoes scabby.

FIXING AMMONIA (Ibid).—The bubbling ceasing soon after your adding sulphuric acid to your liquid-manure may have been because you put too little, the ammonia, if abundant, being speedily consumed with the acid. However, if you followed Mr. Turner's recipe as nearly as you could you were not far wrong, and it is not necessary to be very precise. It is better to have a little less rather than a little more acid than is required to neutralize the ammonia.

HERBS FOR DRYING (T. Johnson).—The best state in which a herb can be gathered for drying, to preserve for winter use, is just as their flowers are opening. We allude to mint, balm, thyme, sage, and other kitchen or medicinal herbs. At that period of growth they are found to contain more of the essential oil, on which their flavours depend, than at any other.

BALSAMS (A Worker).—You will find full directions for their culture at page 276, of our first volume.

ROSE-BUDS TURNING YELLOW (A Cheshire Rectory).—This, probably, arises from want of moisture at the root. Blotch the ground, and give a good soaking with water over this three times a-week until rain occurs.

BILSTERED NECTARINE LEAVES (A Lady Subscriber).—We are quite persuaded that excess of root-moisture, or in other words, stagnation of water at the roots, is one of the prime causes of the blister. We plant on platforms, and have not seen one blistered leaf for

several years, although we have a wall of peaches 240ft. long. Let us advise you to take your tree *carefully* up in the first week of November, and to replant it in the platform manner, which you will find fully described in the earlier numbers of *THE COTTAGE GARDENER*. Follow out that suggestion to the letter, and you will ensure that success will attend your efforts. In the meantime follow up pinching or stopping, as formerly advised.

HIVING BEES (A Bee Master).—We were informed by E. A. W., who was replied to in page 169, that his bees were confined to their hive by a perforated zinc slider, and the hive placed in an out-house; that upon examining them in February, half were found dead upon the floor board, and the stench arising from them intolerable, caused without doubt by humidity and suffocation; and had they been placed in that situation *without* being confined to their hive, as many bees would in a probability have left it, and from it being placed in a new position would have been unable to find their way back to it, and so have perished. It is a practice we never recommend, nor do we recommend transferring bees from one hive to another, reasons for which see pages 319 and 311, vol. 1.

CRABS AND PLUMS (J. Deems).—The cultivation of the three crabs you name (*Siberian*, *Gigantea*, and *Tartarian*) is very simple indeed, precisely the same as apples, excepting that they will not need the knife so closely. Our cultivated plums are all grafted on the Massell or Brussels stocks. Your climate must surely be very bad for plums. Perhaps your soil is deep and stagnant.

MILDEWED MAXX CODLIN (Alcaldede Town).—Your soil is too deep (three feet) and too retentive for the apple, for you say it is a stiff loam on a clay subsoil. Mildew is generally caused by stagnation of water at the roots. We would plant another, according to our previous advice, on the platform mode. Sulphur will subdue the mildew, but we have no faith in anything unless the root is made right.

JANESEAN ROSES NOT FLOWERING (W. H.).—The late frosts destroyed the flower buds of these in many places this season. No roses flower more freely than the Banksian, after they have been three or four years planted, if they are treated properly. They differ from all other roses in flowering on the wood made last year; on that account they should not be pruned after the growing season is over, like other roses. Prune them when they are done flowering, or *over*, and all the strong shoots they make till the end of August, must be stopped when they are a foot or eighteen inches long. The wood made in September will not ripen before winter, and should be cut out at once. Nothing farther is to be done to them till after they flower next season.

MANSEVELL STAVOULENS (Thomas Griffin).—All the large nurserymen grow, or can procure this for you: we must not mention names. It will do little good in a conservatory that is kept warmer than our ordinary summers, during the growing season.

ORANGE-TREES CASTING THEIR LEAVES (Ibid).—Your orange-trees, which lost their healthy leaves, and had nearly rooted, and aggravated their case by a temperature 45° above what would have been suited their condition. Whoever heard of such a thing as orange-trees forced at a temperature of 136°, with no moisture in the air but what might rise from the earth in the pots? Orange-trees like yours, which were in a dark room, and had lost their leaves, would do better if the new house had been kept at 80° or 85°, and the air kept moist to saturation. Those which cast their blossoms will not produce more this season. Oranges set for fruit better in a temperature of from 70° to 75°, with abundance of air, and should be looked over once a day to clear off the remains of dying petals and stamens. Young orange-trees will not fruit easily in conservatories, unless they are artificially dusted with pollen. If you mean to fruit a collection of orange-trees, your conservatory must be kept, from March to September, considerably warmer than an ordinary one, and the Mandevilla will be of no use in it. *Ipomoea Leuori*, *Stephanotis floribunda*, and the *Scarlet passion-flower*, are the sort of climbers to grow in a real orange house; but oranges will stand any thing, from 30° to 100°, if they are well rooted.

HYBRIDIZING THE IRIS (J. Buttersby).—The anthers of the iris are attached to the bottom of the sepals, and the style is sessile, and the styles are petaloid, or in the form of a petal, and the stigma, or part to dust the pollen on, is immediately before the point of the anther, and standing over it like an arched roof—but Mr. Berton will describe the whole process next week.

WATER INSECT (H. J.).—The specimens you sent are the young of the *Notonecta* or Boat fly. They swim on their backs, mostly on the surface during hot still weather, and by a single stroke of the paddles they descend out of sight. They feed upon the very small water insects, but might, at a pinch, feed upon the very small fry of fish.

WHITE LILY (A Subscriber).—The bud you have sent is an instance of morphology; not only the whole of the stamens and the pistil, but some of the leaves beneath, are transformed to petals. This monstrous bud flowers have been seen in the north, and the cause may be traced to the ungenial seasons of last year not permitting the necessary secretions being perfected for the natural development of the parts this year. Such deformities are not likely to recur next summer.

GRUB (Township of East Dean).—No grub reached us with your note.

WATER CRESS CULTURE (Felix).—You will find all your questions answered at pp. 25 and 135 of our first volume.

WEEKLY CALENDAR.

M D	W D	JULY 26—AUGUST 1, 1849.	Plants dedicated to each day.	Sun. Rises.	Sun. Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
26	Th	St. Anne. Grayling butterfly seen.	Wild Chamomile.	17 a. 4	56 a. 7	11 6	7	6 11	207
27	F	Blackcap's song ceases.	Purple Loosetrife.	18 54	11 32	9	6 11	208	
28	S	Admiral butterfly seen.	Mountain Groundsel.	20 53	morning	9	6 10	209	
29	Sun	S.S. APT. TRIN. Common grasshopper.	Red Chironia.	21 51	0 0	10	6 9	210	
30	M	Wheat cut. [per chirps.]	White Mullein.	22 50	0 33	11	6 7	211	
31	Tu	Hoary Ragwort flowers.	Great Mullein.	24 48	1 11	12	6 4	212	
1	W	Lammas day. Swallow's 2nd brood fledged.	Stramonium.	IV	VII	1 55	13	6 1	213

ST. ANNE is believed by Roman Catholics to have been the mother of the Virgin Mary, and that her husband was Joachim. The sisters of St. Anne (Mary and Sobe) they also believe to have been the mothers respectively of Salome (Mark xv. 40), and of Elizabeth, the mother of St. John the Baptist. The Monday after St. Anne's day is celebrated at Newbury, in Berkshire, as *Mace Monday*. The principal dishes of the festival are beans and bacon; and a procession is made, with a cabbage for a mace, and other mock substitutes for the insignia of civic dignity.

LAMMAS DAY is one of the four "cross quarter days," of which Whitsuntide, Martinmas, and Candlemas, are the other three. In Scotland, generally, and in some other parts of Great Britain, rents are payable upon these festivals. *Mus* is the Saxon for a festival, and *loaf* is a loaf, or bread, in the same language. Now, as this day is called *Autumnus* in the Saxon chronicle, and we know that bread made of new wheat was offered by our forefathers at this time as a kind of first fruits, we are led to believe that the day was originally celebrated as a day of thanksgiving for the blessings of harvest, and was, and is, literally the bread festival, or *halaf-mas*. It is sometimes called the *gale*, or festival, of August—*guyyl* or *guyyl*, in the old British language, meaning a holiday or festival.

PHENOMENA OF THE SEASON.—Having shown the contrivances by which, in various plants, the access of the pollen is secured to their stigmas, and the general necessity for such access for the production of fertile seeds, we may now consider some of the subsequent phenomena. It is by no means a matter of indifference how much pollen has access to the stigma, for though in the *petalogramma*, *Microthia palapa*, and *M. longiflora*, two or three globules are found to be sufficient to fertilize all the seed in one ovary, yet from fifty to sixty globules are necessary to be similarly efficacious in *Hybiscus syriacus*. How much plants might be expected to differ in this respect is intimated by the total want of any relevancy between the number of stamens and the number of seeds produced by a flower. The two stamens of an *orchideoides* plant feeded 8000 seeds; and, in *tobacco*, five stamens are sufficient for 900 seeds, while the fifty stamens of *Barringtonia*, the eighty stamens of the *Coryophylli*, and

the two hundred and thirty of *Thea* (tea shrub), are only sufficient for fertilizing two or three ovaries. So soon as the seed has been impregnated the decline of the flower commences, the stamens decaying first, and these being speedily followed by the departure of the petals, and usually of the calyx also. The stigma then withers, and but rarely is its style more permanent. The ovary, on the contrary, increases in size, and alters in appearance, and in none more so than in the instances afforded by our common fruits—the apple, the strawberry, the fig, and the pea. Let us trace the progressive changes in the latter. On the fourth of June Mr. Keith cut under the unimpregnated seed of a pea. It was then filled with a spongy pulp, and about one-thirtieth of an inch in diameter. On the eighth, in a pod from which the petals had fallen, the seeds had increased to one-twentieth of an inch in diameter, and one or two little cavities were perceptible in them. On the tenth, the seeds were one-tenth of an inch in diameter, and the cavities were filled with thin transparent fluid, or *amnios*. On the thirteenth, in a pod of nearly full length, the peas were one-fifth of an inch in diameter, and the *embryo*, or future young plant, was perceptible in the *amnios*. On the fifteenth, the peas were one-fourth of an inch in diameter, and the *embryo* was half that length, but still floating apparently in the *amnios*. On the twentieth, the pea was still of the same size, its lobes were forming, and the *radicle*, or future root, was projecting where they were joining together. On the twenty-second, the pea was one-third of an inch in diameter, the lobes were nearly perfect, and the *plumule*, or future stem, was now discernible. On the twenty-fifth, the seed was fully grown, its lobes united, and the complete *embryo* of the future plant was apparent. The *radicle* was one-eighth, and the *plumule* one-twentieth, of an inch long. It is in vain to ask how the pollen acts to produce these mysterious, organic changes. We can only reply—Brought into contact with the stigma, the pollen awakens in the germin the exertion of previously dormant powers. New secretions, new depositions, of organic matters, occasional, and new formations, are produced, corresponding to those characterizing both parents; but *how* such contact operates is among those wonders of vitality which are inexplicable to our limited comprehension.

INSECTS.—In this month prevails that caterpillar of indiscriminating palate, which is the larva of the Spotted Buff moth (*Spilosoma tubicripes* of



some entomologists, and *Bombus tubicripes* of others). No green leaves seem to come near to this voracious caterpillar—those of the elder, turnip, carrot, mint, scarlet runner, and broad bean, are only a few that have been known to be devastated by the same broods; and it has been justly observed that, if these creatures ever prevailed extensively, they would sweep away our crops as effectually as a plague of locusts. The back of the caterpillar is a dark greenish brown, and the under side considerably paler, and rather greener. The two colours are separated by a waving white line down each side, and the body is covered with brushes of reddish brown hair. It changes to a black shining chrysalis, wrapped in an oval cocoon composed of silk and the hairs of its body, and attached to some fallen leaf. In this it

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
25 Highest & lowest temp.	Fine. 72°—53°	Fine. 73°—48°	Showery. 73°—56°	Cloudy. 74°—55°	Cloudy. 71°—52°	Fine. 76°—56°	Fine. 75°—54°	Rain. 67°—51°
27	Fine. 70°—49°	Cloudy. 75°—55°	Showery. 74°—54°	Fine. 83°—56°	Cloudy. 77°—48°	Fine. 73°—63°	Fine. 81°—50°	Showery. 79°—53°
28	Cloudy. 77°—49°	Stormy. 75°—55°	Cloudy. 73°—58°	Fine. 88°—57°	Rain. 72°—41°	Cloudy. 83°—53°	Cloudy. 77°—57°	Fine. 77°—56°
29	Cloudy. 65°—45°	Cloudy. 65°—45°	Showery. 71°—53°	Fine. 70°—44°	Cloudy. 88°—43°	Fine. 88°—66°	Fine. 88°—54°	Fine. 78°—48°
30	Fine. 68°—48°	Fine. 68°—48°	Fine. 71°—49°	Showery. 64°—55°	Rain. 89°—62°	Fine. 89°—62°	Fine. 89°—48°	Cloudy. 77°—58°
31	Showery. 62°—44°	Cloudy. 68°—17°	Fine. 66°—47°	Fine. 73°—49°	Showery. 69°—50°	Fine. 89°—61°	Rain. 84°—48°	Rain. 72°—51°
1	Showery. 60°—49°	Fine. 73°—43°	Fine. 72°—46°	Showery. 71°—45°	Stormy. 68°—52°	Stormy. 91°—46°	Stormy. 69°—50°	Stormy.

remains through the winter, and the moth comes forth in May or June. The moth is rather more than 1½ inch across the expanded fore-wings, which are yellowish buff-colored, and the hind-wings are rather paler. All the wings are spotted with black, often as represented in our drawing, but frequently the spots are larger, and running more together. The antennae and legs are black, and the body is orange-colored, with rows of black spots down the back, sides, and underneath. Both the moth and the caterpillar should be sedulously sought for and destroyed.

THE great horticultural shows of England may be considered as having closed with that of Chiswick, on the 11th instant, and it will be time not mis-spent to cast a partizan glance over these past "floral games," for the purpose of striking at those portions which we think should be avoided in future contests.

We have on more than one occasion objected to

the highest prize attainable at such exhibitions of the results of gardening skill, being awarded year after year to those who, though no more skilful than their competitors, happen to serve employers willing to spend vast sums annually in purchasing from florists the finest and the rarest specimens from their nurseries. It is quite true, as we have acknowledged

before, that rewards so gained tend in a restricted degree to promote the progress of horticulture—for they encourage florists to import and to foster the rarest of plants, and such as require great skill to cultivate. But could not the same important object be better fostered and attained by the two great Metropolitan Societies offering their highest rewards to smaller collections? We think they could; for we never see in the collections of *thirty* plants, specimens not to be found in the smaller collections. Neither are the thirty-plant collections better grown than the plants of the smaller groups. Then to number and size is the highest prize given—not to pre-eminent skill; and gardeners, every way the equals of those who exhibit collections of thirty, have to labour under the mortification and depression of knowing that, though their twelve or twenty plants may be equal or even superior specimens of cultivation, they can never obtain the highest public reward of their art, because two parties are able to exhibit ten plants more. The higher the rewards offered to smaller collections, the more numerous would be the competitors, and, as a consequence, greater would be the benefit, for more widely diffused would be the struggle, and more numerous would be those who witnessed the skilful efforts for the crowning reward of horticultural merit. No argument need be brought forward to prove that these increased centres of exertion would be proportionately beneficial to their neighbourhoods, as well as to the gardeners employed; and it is equally needless to argue that a florist would be as much benefited by selling a larger number of good specimens of a rare plant, as he would be, by selling one huge specimen. Sustained by these considerations we feel no doubt as to the desirability of an alteration in the rules for the award of the greatest prizes of the two societies, for at present those prizes are not awarded upon terms securing that they shall be earned by specimens demonstrating that their cultivators possess the greatest amount of horticultural skill.

Descending to minor particulars, we would direct the attention of the councils of the societies to the dictation of some rule restrictive of the use of training stakes. We are not inclined, as some are, to exclude these regulators altogether, because we all know that some flowers, such as several varieties of fuchsia, could not be exhibited in pots advantageously without some slight support. But we do protest against the excess of such training and displaying. For instance, one specimen at the last Chiswick show, *Compte de Beaulieu*, was exaggerated by having all its blossoms trained round and staked so as to face the spectator—a trick which, so far as Horticultural shows should be exhibitions of skilful culture, and not of manoeuvring, should exclude all such specimens even from being entered for competition.

We should like to be informed if there is any

reason why at Chiswick so few plants, cultivated by the Society's own skilful gardeners, are exhibited. Instead of these plants being exhibited, we see such notices as this placed against the Stoves—"Hothouses not to be opened this day." Surely in a Society to which we look for example as well as precept, this should not be, but, on the contrary, when thousands are gathered there from all parts of our islands, the whole stores of the Society should be thrown open for their instruction. We regret this the more, because the ferns and the Californian plants, exhibited on the 11th, were sufficient to make us wish for other specimens.

Having so recently written upon the arrangement of flowers, we cannot refrain from referring to that of the two great collections on the 11th; for they afforded some striking illustrations of the effects inseparable from tasteful and from ill-contrasted arrangement. Mr. May's plants were indisputably finer than Mr. Coles', but they were rendered still more striking by their more judicious juxtaposition of colours. We must confine our comment to one point, and it shall be the summit of each group. Both were in a pyramidal form, [and the apex of Mr. May's was formed by the golden flowered *Allamanda cathartica*, and adjoining it was its natural complementary colour in the blue petals of *Sollya linearis*, and yet relieved, for the blue is somewhat too dark, by being associated with the white clusters of *Stephanotis floribunda*. Than this nothing could be more skilful; whilst Mr. Cole had the white flowered *Schubertia graveolens* as the summit colour of his pyramidal group, and when white thus forms the apex of such a form, no arrangement of colours near it can be adopted to render it pleasing. Yet to render the effect still less agreeable, and as if, at once, to be violent and monotonous, scarlets were placed on each side, the *Clerodendrum kempferi* and *Clerodendrum paniculatum* being, on either hand, its next neighbours. The superiority of taste displayed in the arrangement of Mr. May's group struck us most pointedly, and though this could have no influence over the prize award, yet it had a great influence in enhancing the gratification of the numerous eyes that enjoyed this display of natural beauty.

THE FRUIT-GARDEN.

Budding.—As the time is at hand for budding all kinds of fruits, it may not be amiss to offer a few plain remarks to the uninitiated. We may first offer the rationale of the process, and we cannot do better than make an extract from a celebrated modern author, who thus aptly describes it:—"The buds of trees are originated in the young shoots in the axils of the leaves; and when the bud begins to grow, its connexion with the medullary sheath (sheath of the pith) closes, or, at all events, the bud, if detached and properly placed in the

albumum of another plant, will become vitally united to it. On these facts the art of budding is founded. This mode of grafting is chiefly applicable to woody plants; and the scion may, in general, be secured to the stock, and sufficiently protected there, by bandages of bast mat, or thread, without the use of grafting clay or wax. The union between the scion and stock takes place in the first instance in consequence of the exudation of organisable matter from the soft wood of the stock, and it is rendered permanent by the returning sap from the leaves of the stock, or from those of the shoot made by the bud."

It will be seen by these remarks that it is principally the returning sap which promotes the junction between the scion and the stock: a fact which we would wish to impress on the minds of all horticultural tyros, and the cottager also would do well to bear it in mind; for herein lies the germ of a great principle, which rules many gardening processes.

A great number of fantastic modes of budding are practised by various persons, especially our neighbours on the continent; and certainly some of them (seldom practised in England) are very interesting to those who wish to exercise their ingenuity. To explain the whole would occupy more space than we can spare in our number; we must, therefore, return to the subject at another opportunity, and in the meantime content ourselves with that portion of it which is principally practised in our great nurseries on out-door fruits, for no better practice exists. This kind is termed *shield budding*. The main uses of budding are thus quoted by Loudon: "To propagate some kinds with which the other modes of grafting are not so successful as the rose; to perform the operation of grafting with greater rapidity than with detached scions or inarching, as in the case of most fruit trees; to unite early vegetating trees with late vegetating ones, as the apricot with the plum, they being both in the same state of vegetation during the budding season; to graft, without the risk of injuring the stock in case of want of success, as in side budding, and in flute budding without heading down; to introduce a number of species or varieties on the same stem, which could not be done by any other mode of grafting without disfiguring the stock in the event of the want of success; to prove the blossoms or fruits of any tree, in which case blossom buds are chosen instead of leaf buds; and, finally, as the easiest mode of distributing a great many kinds on the branches of a tree, as in the case of roses, camellias, and fruit trees." Thus far Loudon, who hereby gives a pretty clear illustration of the objects to be obtained by budding, as distinguished from spring grafting, yet forming a mere section of that operation. We need scarcely offer an apology for quoting from so good an authority on this occasion, for we are not aware that we could have enumerated the objects quite as well. We may now observe that for those who have much to perform in this way, it is indispensable that they provide themselves with a *budding knife*, for although an ordinary knife may be made to perform the operation, yet it is by no means fit for so delicate a proceeding. This kind of knife can be purchased of any respectable seedsman.

SEASON.—Some choice of season should be made, if possible, for the operation, for it is much better performed when the atmosphere is moist and the sun absent than otherwise; and although nurserymen, from pressure of business, bud in all weathers, yet the amateur and cottager may easily choose a proper

period. Besides the condition of the atmosphere, the state of the soil as to moisture should be taken into consideration. If a period of drought should occur, the bark will be found not to rise so readily as when a lively root action prevails; more especially if the season be far advanced, or the stocks to be operated on are of some age, or "beneath par" in point of strength. This, then, will readily suggest the propriety of root watering previously, even using liquid manure in important cases, in order to throw an extra amount of the ascending sap into the system, by which means the bark will rise with a greater facility.

MODE OF PERFORMING THE OPERATION.—Expedition is the principal thing, and this of course presupposes some dexterity and expertness. In summer budding, the cutting or shoot from whence the buds or scions are taken is not cut from the parent tree until the moment the operation is about to commence. The best way is to provide a pan or can with some water in it. The moment the young shoot which is to produce the scions is removed from the parent, let all the leaves be cut off, leaving the petioles, or footstalks, of the leaves to handle the buds by. The ends of the young shoots may then be stuck on end in the water, taking care, of course, to number or name them, if accuracy of this kind be requisite. All being thus in readiness, and the operator having a bundle of long, bright, and strong bast hanging by his side, and a finely whetted budding knife (or a relay of them where much business has to be done) in his hand, operations may commence. We will suppose what may be termed a nurseryman's case, viz., a young plum, apricot, or peach stock; that is to say, in their phraseology, the Brussels stock for the plum, the commoner stock for the apricot, and the muscle stock for the peach. Such stocks are generally about a couple of feet in height, and they are mostly budded about a foot from the ground. The operator generally turns his back to the stock, for such stocks are generally branched a little, and by backing up to them, the axillary branches are forced right and left out of the way of the operator by means of his legs. Well, he then takes a scion out of his waterpot, and generally commences at the lower end of it. With a clean cut he takes out a bud, now called "a shield," for it is necessary to cut nearly an inch above the bud, and the same below it: and with this shield a slight portion of the woody part of the stem is taken. Now, with railway speed, the wood must be extracted: this is readily done with the finger and thumb of the right hand, and one caution is here necessary. If a hole appears at the back of the bud, on the shield, it must be rejected as worthless; it is a sign that the shoot is not sufficiently mature, and that the bud was not properly organised, or that it has been drawn out by the very roots, in extracting the piece of wood, or rather alburnous matter. The bud being right, a slit must be made across the stock, at the very point where the bud must be inserted. This slit runs across, and with the assistance of another below it, and running perpendicularly into the centre of it, must form a figure like the capital letter T. The haft of the budding knife must now be applied to the sides of the incision, and by a gentle pressure up and down, the bark will be found to become readily detached from the wood. Taking hold of the leaf stalk of the bud or shield, the operator now slips it in beneath the raised bark of the incision in the stock, and when this is done, a compact and close tying of bast, from the bottom of the shield to the

top, completes the process. All this, though apparently tedious in the detail, is merely the work of a minute, or, at most, a couple of minutes, to an expert and well practised operator. We, however, can do no more than lay down the rationale of the process, and the mode of carrying it out: expertness must be acquired by some practice in this as in most other matters. All we can say in addition is that unless each bud is quickly inserted after being extracted from the parent shoot, success becomes very doubtful, especially if the atmosphere is dry and the sun shines bright. We would advise that any side of the stock be selected but that directly south. The sun has a powerful action in the neighbourhood of the bud when in this situation; and such is, therefore, to be avoided, although we are aware many old practitioners in the nurseries do not pay any heed to such distinctions. The reason is that their mode of conducting the operation is so expert, and so much expedition is exercised, that the bud scarcely suffers at all in its transit; it therefore succeeds in nine cases out of ten.

We would advise particular attention to the following points, whatever the kind of tree may be, or whatever the height or position may be at which it is budded.

1st.—That the tree be in a state of high elaboration: that is to say, great part of the foliage thoroughly developed, and the growing or extending principle rather on the wane. This will, in general, take place between the second week of July and the second week in August, in most parts of Britain.

2nd.—That a lively course of root action be secured, by having recourse in seasons of drought to copious watering a day previously to budding.

3rd.—To reject all buds that appear torn out or otherwise injured: this is indicated by the hollow before named.

4th.—To avoid any extreme of mutilation or pruning back, at the period of budding; we have seen roses reduced to a mere stump for convenience sake: such cannot be successful.

5th.—To avoid too tight ligatures; the bast must be quite close, but not tight. It should be understood that the bud does not form the union by means of pressure alone: the bast acts beneficially also by shading the bark of the shield, or bud, thereby preventing excessive perspiration.

Those who have a variety of fruits to bud should take them according to the order in which the wood becomes perfect: thus, cherries may stand first, apricots second, plums and pears third, and peaches and nectarines fourth. The only after care, is to water occasionally during the first fortnight, if the weather is very dry, and to remove the bandages in due time. This may, in general, be safely done within a month, and the best criterion of the success of the bud is the dropping off of the footstalk. If the bud is taking well, this will fall away in a week or two; but if the footstalk shrivels up, it is a bad sign. The portion of the stock below the bud should, in all cases, be kept clear from useless spray. In cases where it is necessary to reserve such shoots, it will suffice to pinch off their growing points.

R. ERRINGTON.

THE FLOWER-GARDEN.

NOTES OF A JOURNEY INTO HERTFORDSHIRE.

MESSRS PAULS' ROSE NURSERY, CHESHUNT.—Having often been invited to visit this celebrated rose garden,

and an opportunity occurring a few days ago, we took time by the forelock, jumped into an omnibus that conveyed us to the Eastern Counties railway one evening, and, in little more than three-quarters of an hour, arrived at the Waltham station. And here we might describe the inconveniences of railway travelling, the difficulty of obtaining tickets at the terminus at Shoreditch, and the crush and rush to get them. Certainly they manage these things much better at any other booking-office in the kingdom. We might ask this simple question of the directors, Why do you not employ more clerks, and have separate entrances for first, second, and third class passengers, and have at least two clerks to take money and deliver tickets to the last-named class? We are quite sure the public, or at least that part who have occasion to travel by your railway, would be glad and thankful for such an alteration. But we have arrived, in spite of this inconvenience, quite safely, and we trust to find the giving out tickets managed better on our next visit.

As the evening was cool and pleasant, we chose to walk the mile and a half. There are some very neat villa residences at Waltham and Cheshunt—the two villages joining at their extremities. About the centre of the former stands a beautiful cross, one of the many erected by King Edward in memory of his beloved queen, who rested here on her last journey to London. It is a great pity that the houses which crowd upon one side of this fine monument of a king's love are not removed to a more respectful distance. We were agreeably reminded that we were approaching a rose nursery, by observing the walls, windows, and palings of the villas, and cottages too, for the greater part covered with festoons of climbing roses, in full flower, diffusing their charming fragrance through the evening air. There are several very pleasant country inns in Cheshunt, which, in the palmy days of coach travelling—now, alas! no more—had plenty of business. We chose one to rest our weary limbs near to the nursery gates, for the simple reason of being near to them in early morn. As soon as that arrived, we shook off dull sloth, and, after the necessary ablutions and duties were performed, sallied forth in anticipation full of enjoying a rich treat. Against the ancient dwelling of the proprietors of the nursery we observed a fine specimen of that beautiful creeper, the *Bignonia radicans*, just showing its buds of trumpet-shaped bronze-orange coloured flowers, with fine foliage, something like the leaves of the common ash. We would just remark, *en passant*, that this lovely creeper is not cultivated for this purpose—to ornament the walls of a dwelling-house—half so much as it deserves. We inquired for the proprietors, Mr. George and Mr. William Paul, and were received by them with that unpretending yet hearty welcome which at once gratifies the visitor, and raises his opinion of the worth and value of such estimable characters. Several of our readers no doubt are aware, as well as we are, that the original projector and proprietor, Mr. Adam Paul, has gone to that "bourn from which no traveller returns." He was a man universally respected; and we cannot refrain from bearing our humble testimony to departed worth; and we are happy to say that his sons are treading in his steps, and will, if they persevere as they have begun in well doing, meet with their due reward. Mr. W. Paul, the second son, is the author, as is well known, of a treatise on the culture of his favourite flower, the rose, an extremely useful and instructive book, which ought to be in the hands of

every cultivator of roses. We were favoured by having him as our cicerone through this garden of sweets. A straight, broad, nicely gravelled walk leads from the entrance gates, showing off to great advantage a row on each side of standard roses: these are mostly of the older kinds, and are remarkable for their perfect health, notwithstanding their great age. One tree, the *Duc d'Orleans*, a Bourbon, we particularly noticed on account of its large size: the stem near to where it had been budded was a foot in circumference; the height of the stem and head six feet; the branches covered a space the diameter of which was seven feet, or nearly twenty-one feet in circumference. The tree was perfectly healthy, and covered with its crimson and violet-coloured blossoms. Our grand object in visiting this nursery was to notice and remark upon the best kinds of roses for the various purposes for which the rose is adapted; and, with that intention borne in mind, we trust our observations will be useful to our readers.

Now, the rose that particularly attracted our attention, as pre-eminently beautiful, was the hybrid China *Coup d'Hebe*. Its flowers are large, cup-shaped, of a rich pink colour. It is well adapted for a standard, for a dwarf for pot culture, and forces well.

The *Bride of Abydos*, a Tea-scented China, is also a most beautiful rose, with flowers of a creamy white, tinted with rose, delicately beautiful, of a good size, and very double. It is impossible, by any description, to do justice to the delicate loveliness of this fine rose. In addition to these fine properties, it is most deliciously fragrant; it is well suited for pot culture and for forcing; thrives best on its own roots as a dwarf.

Fulgens, an old favourite, of which we need not say much, it being so well known. A large standard of this fine rose was pointed out to us, 7 ft. high, branches 24 ft. in circumference, covered with blossoms of the richest crimson; suitable for a standard, a dwarf for pot culture, and forces admirably.

Proceeding down the straight walk alluded to above, we came to a rising ground, on the top of which is a walk crossing and terminating the long one. On each side of this cross-walk is a row of pillar roses. These have a fine effect from being planted on the summit of the gentle rise: they appear to great advantage. We noticed the following as being excellent pillar roses:—

Ayrshire splendens, a fine example of a pillar of roses; immense clusters of white, edged with red, myrrh-scented roses; the branches, hanging gracefully from the pillar, gave to this specimen such a lovely appearance that we could have stood for hours to admire it.

Not less effective was *Ayrshire Thoresbyana*, with pure white flowers, in large clusters and very double.

Velours Episcopal, a hybrid Bourbon, is here grown as a pillar rose, and was highly effective; its violet purple blossoms contrasting finely with its paler coloured neighbours.

Rosea plena, an evergreen rose, with an unmeaning name, has a fine foliage, with flowers of a deep rose, and very double.

Ramante, also an evergreen rose, of the quickest growth, with pure white very double flowers.

Louisa Davoust: we shall describe this fine pillar rose when we come to that part of the nursery where it is grown against a wall, it being well adapted for both purposes. (*To be continued.*)

THE WEATHER.—There is, whilst we are writing, some appearance of rain. We trust, before these

lines meet the eye of our readers, we shall have had a copious supply of that most needful and much wanted element—water from the clouds. Should, however, our anticipations be not realized, we must continue to instruct our friends to water freely, not only the actual spot where your flowers grow, or the pots in which they are put, but also the ground all round, and the walks likewise, and grass. Do this in the evening liberally, and the effect will be most beneficial to the cherished objects of your care. Stir the surface frequently of all your flower beds. This will prevent the earth from cracking, and will allow the water you apply to enter regularly into the soil. If that soil is hard, baked, and cracked, the water will do very little good, either running off at the sides, or sinking away into the cracks, thus leaving the flowers unbenefitted by the watering.

FLORISTS' FLOWERS.

CARNATIONS and PICOTÉES.—Continue the same attention as we directed last week. Shade from sunshine, and protect from winds; the blooms will then last much longer.

DAHLIAS.—Finish layering, as soon as possible, dahlias; cuttings of new kinds may yet be struck, to form small pot bulls; great attention must be paid to the staking and tying them up. The large heavy leaves, in heavy rains, accompanied with wind, soon snap off the brittle side shoots if not securely fastened. If your flowers are intended to be exhibited in competition, thin the buds early. It is a good rule to leave no more than one flower on each branch, thus concentrating the whole of the strength in that branch, to produce a noble, well proportioned, flower. To preserve the colour and form of the flower intended to compete with, it is necessary to protect it from rain, wind, and sunshine. The caps recommended in our last Number for carnations answer this purpose tolerably, but the most effectual protective we ever saw was a square wooden box made of thin deal boards, of sufficient size to contain the flower without touching the petals; one side was made in the form of a door hung on hinges; a slit halfway across the bottom board admitted the flower stem. The door was glazed with a pane of glass. This door ought to be placed to the north, so that the sun could not reach the flower at any time of the day, excepting very early in the morning, or late in the afternoon. Each box was nailed firmly to a strong stake, of the proper height to receive the flower it is intended to protect. If the slit at the bottom be stopped up with moss or wool, no earwigs can get in to spoil the bloom. During very hot weather, the door can be left open in the day, to give air to the flower. The best stand of dahlia blooms we ever witnessed was produced under the protection of those tiny greenhouses. Continue to water with liquid-manure, occasionally, during dry weather. Much round each plant with short, half-rotten manure, and stir the surface with a short-pronged fork whenever it becomes hard or crusty. Place traps for earwigs, and examine them every morning, destroying those destructive vermin as soon as you find them. Do not think it too much trouble to take a light after night has set in, and carefully look over every flower. If you have any earwigs that have concealed themselves during the day, you will find them now feeding upon, perhaps, your best flowers; destroy them instantly. By taking these pains, you will have at last the pleasure of producing some flowers that will not only win prizes,

but be an honour to you as a good and careful cultivator of this fine flower.

T. APPLEY.

GREENHOUSE AND WINDOW GARDENING.

SEEDS AND CUTTINGS.—About the end of July, and beginning of August, every one who can command a window, or a pit where the sun can reach it in winter, ought to sow the four following kinds of seeds: *Cinerarias*, *China primroses*, *Calceolarias*, and *Mignonette*—all of them for flowering next spring; and, even if part of them are lost in winter, the money loss would be but trifling. Rearing seedlings from cheap packets at all times, and particularly in winter, is one of the very best exercises for learning household gardening. To water plants when they are grown up, to stake, prune, and shift them as they need it, requires more forethought and judgment, it is true; but the nicety—the finger-work of gardening—can only be acquired by a good long practice with seedlings. Therefore, if for no greater aim than this, I would strongly recommend as many seedlings to be kept over the winter as circumstances will allow.

Those who begin now, and soonest, will have the best chance, as their seedlings will be in good trim before the winter. Gardeners keep sowing their seeds till very late in the autumn, but it is not at all a good plan, although sometimes unavoidable, as in the case of geraniums and others, which have been crossed late in the season, and of which the flowers must be seen before much room is allowed them, as often not one out of a great many is worth anything. If such as these were not got into the soil before the end of this season, they would not have sufficient time to show their characters next summer; and, if they were to be kept over the winter unproved, they would eat their heads off, as they say in the highlands when the winter feed of their stock exceeds the value of many of the animals.

I would advise for all small seeds like these to have the pots well watered before the seeds are sown in the summer, or early in the autumn. In the spring this is hardly necessary, but now, unless the soil is well moistened before the seeds are put in, the heavy watering necessary to dump it through will be apt to displace and injure small seeds, which ought to be covered but very slightly. When seeds vegetate at this season they grow away rapidly, therefore they should not be thickly sown, because, if they are, they get so crowded before they are fit for transplanting, that one half of them are injured so as to make it very difficult to rear them.

We all know by this time that small pots are better than large ones to rear seedlings in, and also that seedling plants are safer the sooner they are removed from the seed pot after they are in the first or second rough leaf; and when they happen to get crowded in a seed pot, as sometimes they do, even after they are sown thinly, by the watering washing them to one side of the pot, it is best not to wait for their coming to full transplanting size, but to take them up in little patches with a flat pointed stick, and so place them in the new pot—say half a dozen in a patch. This will effectually prevent their getting injured, as they may have plenty of room given them. All that is necessary is to place the little colonies on the surface all round the pot, and then fill up between them with light sandy soil, and

then a gentle shower from a watering-pot will establish them comfortably. The great secret in gardening, as I have often said, lies in a small compass, and such minute attention is the lower and best stratum of it.

The *mignonette*, however, must be taken out of this classification, as it does not transplant readily. Sow it exactly as recommended for tree *mignonette*, and, after it is well up, thin out three or four times, leaving only four or five at equal distances to come to maturity.

PETUNIA SEED.—As these flower freely the same season they are sown, most people prefer sowing them early in the spring, and that is the safest time for them. There used to be a good old plan of sowing many hardy annuals in pots in the autumn, and keeping them over the winter in a greenhouse, or very dry pit, to be transplanted singly into small pots early in the spring, and, by another shift or two, to be made nice bushy plants, to flower a month or six weeks before the same sorts came into flower in the open ground: a month hence would be time enough to sow such seeds. I have never done much of that sort of gardening myself, but I well recollect having seen, many years since, specimens of good gardening that way, and useful flowers reared for very little trouble, and I notice it now to invite others, who may have still followed out the plan, to supply a list of such annuals as they found best to answer that way, and any details of management which their own practice may suggest. No doubt hundreds of short rules of this kind might be collected, and be of great use among amateurs, though it is often difficult to know where to stop when one begins to write about flowers.

CUTTINGS of a great many plants will now strike root easier than at any other season. A hand-glass or two, in a north aspect, and a bed of light sandy soil, with a slight covering of sand on the surface, would turn out many useful cuttings in five or six weeks. Cuttings made in the old-fashioned way, by slipping them from the old wood, thus leaving a heel to them, will root more surely, although they may be a longer time about it, than such as are taken from the young tops and merely cut across under a joint. But the latter mode is the less trying to a young or scarce plant from which but few cuttings can be got. The soil for these cuttings should first be watered, and then pressed down tight, so that the cuttings may be firmly set with a small stick or dibber; and when the whole is finished off, a gentle shower from a rose pot should be given to settle down the surface smoothly. After this they should be left to get partially dried before the glass is put over them, which will prevent the leaves from damping or getting mouldy, as some of them will be sure to do, more or less, by this close confinement. Therefore they will require to be watched and looked over once in two or three days; and when any damp or dried-up leaf appears, it must instantly be removed to prevent the mischief going any farther. As often as the soil appears dry a gentle shower ought to be given, but very little water will suffice to keep the whole in a uniform moist state. As soon as cuttings under such treatment begin to make fresh leaves, it is a good sign that roots are formed, and now a little air must be admitted by putting a prop of some sort under one side of the hand-glass, sufficiently high to raise it up a couple of inches or so, and this had better be done for the first week only at night, letting down the glass next morning. This will inure the plants by degrees to stand more and more

air, till, at last, the glass may be left off altogether during the night, and kept only partially over them through the day. A good deal will be gained by strict attention to these simple rules; because, the more hardy cuttings are brought up, the more firm and stocky the plants will turn out, and be the easier to pass through our long winters. It can never be too much insisted on, that cuttings and seedlings reared in the autumn should be got ready as hardy as the state of the weather will permit, whereas those propagated in the spring, having the whole summer before them, need not be so particularly nursed.

This is a good time to put in cuttings of *tea-scented roses*, which are so beautiful in pots; and if taken up by the end of September and placed five or six in a pot, to be wintered in a cold pit, as they do not stand the frost well at this age, they would be in good order to be singly potted next spring, or what would be better, planted out for another season in a nursery bed full of very rich soil. Some people say they would do better in very rotten dung altogether at this stage, provided the bottom be dry; and, probably, this may be right enough; at any rate, we know the nursing bed for all young roses can never be too rich: and if we were to say for their soil one-third very rotten dung, one-third leaf-mould, and one-third turfy, good loam, we should not be far from the mark. If this bed was made 18 inches thick, over a dry bottom, and in a sunny sheltered situation, we might get tea-scented roses large enough in one season to be potted for exhibition.

CRASSULAS.—This is also a proper time to put in cuttings of crassulas to flower this time next year on single stems. Select for this purpose the strongest shoots that have borne no flowers this season. These being always the best when they can be procured. Cut them four or five inches from the top, and strip off the leaves an inch or so at the bottom, and when the cut is dried over, after a few hours, put them into pots of nothing else but sand—But they would root in any thing. A window, or a shelf in a greenhouse, is the best place for them to make roots, and they require very little water. I have even seen them flower most gorgeously in nothing but pure sand, and also in half sand and half peat, and I have seen them in the very richest composts. We grow them here very largely, and make flower beds of them. The compost we use for potting them is yellow loam, and one-third pounded soft bricks, using dust and all; but I must have a regular chapter on them some of these days, as they are as easily kept and finer than the best cactus.

HYBRIDIZATION.—When I began noting down a few stray thoughts on crossing, I had no idea the subject would have attracted such attention. I have had since to give several verbal lectures to friends and neighbours, and I have even been requested to write about crossing wheat and barley, and other grain crops, as if farmers have not had enough of crossing and re-crossing amongst all their crops of late years. All that I have room for to-day, however, is to explain to a worthy man (*J. B.*) how the iris is crossed. He says, "I cannot find out, after dissecting a good number of flowers, where the pistillum is to be found. The anthers seem to be situated upon the seed vessel, and entirely to close over the top of it, so as to prevent the possibility of fertilizing; yet, of course, this cannot be, for the iris bears seed freely with me." This has always been the case. The iris is a puzzle peg to all young beginners in cross-breeding, and yet this morning a clever young gardener who called here found out this mystery, for the first time,

in my presence, after failing to unravel that of the "blue bells of Scotland," or, as the old song has it, "my own blue bells." The anthers in the iris are always three in each flower, and, in appearance, do not differ from those of the gladiolus and most flowers. They are inserted, not as *J. B.* supposed "upon the seed vessels," but into the bottom of the sepals, or the three large petals which hang down. The true petals are much smaller than these sepals, and stand always erect. Now, if you hold an iris flower in your hand, and follow me, we shall soon make the thing plain enough. You see the three sepals branch out, in an arch-like form, between the erect petals, and then spreading out into a broad limb, which hangs more or less down; take hold of this broad part of the sepal and pull it down flat against the seed vessel, when you will see the stamen inserted at the bottom of it, holding up the anther in a bent form under an arched *something*, between a petal and a sepal. There are three of these arched things, one over each anther. Now, pull off the broad sepals, leaving the stamens under this arched process, and then you have three erect petals with these arched things coming out between them, and, as botanists say, are incumbent on and over the stamens and anthers, which fit into the form of the arch completely. If we recollect that in the iris tribe the pistils are always found at the back of the anthers, we shall have no difficulty in comprehending these arched bodies to be the true pistils, as, in reality, they are. This form of the pistil is called *petaloid*, that is, something in form of a petal, or nearly so. The style in our iris divides at the upper end into two wings, and just between these wings, and opposite the top of the anther, is a thin transparent membrane, which is the real stigma, having the clammy surface on the upper side, or that farthest off from the anther. By cutting out the anthers before they burst, and by applying the pollen from another flower to the upper surface of this thin membrane, a cross may easily be effected, much easier, indeed—now that we know the parts—than in many other flowers of a more simple form, as here we have nothing to cut away to get at the true stigma. Let us finish our dissection by carefully cutting out the stamens and the erect petals. The sepals we have already torn off, taking care not to disturb the three arched pistils, only taking off the ring, or tube, to which the sepals, petals, and stamens were joined; and now we have only the seed vessel, with these three arched styles fixed to the top of it, as all styles are. If we look carefully, we shall find that there is only one style after all; the short column between the top of the seed vessel and the bottom of the arched branches is the true style, and is branched into three petaloid divisions. In the geraniums, the style branches into five of these divisions and, if each of these was also of a petaloid form, what a strange flower they would make! When the bees are looking for the honey in the flower of an iris, they cannot easily disturb the pollen, or dust it on the film of this kind of stigma, so that those endless varieties we see in the bulbous irises are produced by the wind shaking off the pollen from the different flowers; the pollen of the iris, and of many other kinds of plants, being almost as subtle as electricity itself. Therefore, it is very essential that all flowers should be cut off from an iris plant, or bed, except those operated upon, while the experiment is in progress. I have no room to-day to give the reason why my friend could not make out the dusting of the bell-flowers, or campanulas.

The *Petunia* was pointed out to me the other day as a fit subject to explain how it is best crossed. This, the purple petunia, is the first plant I ever crossed with the express view of proving a botanical puzzle. It was introduced about the same time as the hybrid *Calceolarias*, from Uruguay, or what used to be called *Banda Oriental*, a country on the south side of the Brazils, of which Monte Video is the capital; and, on its first appearance, the botanists were at loggerheads about its natural affinity, some giving it one name, and some another, so that in a short time it had three distinct family names—*Salpiglossis*, *Nierembergia*, and *Petunia*. This was thought a favourable opportunity to test the accuracy of our very first botanical authorities. Of *Salpiglossis*, we had two or three kinds then. The small *Nierembergias* were only beginning to attract attention; and of *Petunias*, we then only possessed the old white *hyacinthiflora*. All those who had any experience in crossing, could perceive, at once, that the question lay between the *Petunia* and *Salpiglossis*, and to which of these the new plant belonged was the question to be solved by the hybridizer; for it could not cross with the two families, or, if it did, the youngest of them would have to go to the wall, for then it could not be upheld as a distinct species, but be absorbed in the other, which had the priority of name. At the outset, I did think that I could unite the two families of petunia and salpiglossis, by means of this new plant, but I was in error—so nearly do some families approach each other without being absolutely the same kind, and the marvellous nicety of descriptive botany is brought more prominently before us on such trying occasions.

The new plant and the old white petunia made no scruples against crossing, but united each with the other's pollen at once. The three plants under experiment were kept widely apart from others of the same kind, to guard against the intrusion of any pollen but the one intended. The flowers I cut off at the middle of the tube, in order to get the stamens extracted without injuring the stigma, for it is not easy operating on the petunia without dispensing with the open part of the flower. Well, one day I thought the die was cast, for I found a seed-pod on the salpiglossis swelling fast, but it had no "cross-mark" on it. It is always a good plan to tie a piece of matting or worsted to the footstalk of every flower one crosses for experiment, to distinguish them from others not crossed; and, to save one's memory, it is also a good plan to tie a small label to a single shoot, instead of to one flower, and five or six flowers on that shoot may be crossed with the same pollen, to give a better chance to the experiment. One name or number will then serve for the whole, and so on with other shoots, or single flowers; but whatever the contrivance may be to distinguish the crossed flowers, it is called the "cross-mark." The seeds of this pod of the salpiglossis, however, turned out to be no cross after all, but only those of a flower without petals—a circumstance that has since been often noticed by others, and is another confirmation of the slender part which petals play in the process of fertilization, to say nothing of a large number of *apetalous* flowers, or such as are by nature devoid of petals altogether. Many other attempts—and by different individuals—have been tried in vain to unite the salpiglossis with petunia, but the actual process is the same in crossing both families. Before the flower opens—or say the day before it is expected to open—cut it very carefully across the middle of the neck or tube, and cast off the top like a head.

The stamens, being inserted just inside this tube, will follow the cut part, leaving the style behind in the middle of the cut tube. In the course of the following day the stigma is ripe for the pollen; and, to apply it, all that is necessary is to take an open flower, cutting away the limb, or open part of it, just below where the anthers appear in the throat; then, with the bottom of the tube between the fingers, touch the stigma with the anthers, and the pollen will immediately adhere to the juicy point, and then the work is completed.

Next to gardening and botany there is no branch of natural history so fascinating to the young, or more useful for us all, than that which teaches the extent and wonderful variety of insect life—*entomology*, from *entomon*, an insect, and *logos*, a discourse. The professors and cultivators of this science are therefrom called entomologists; and I rejoice at being able, through the pages of THE COTTAGE GARDENER, to convey to all such, and to many others, the gratifying intelligence that the *father of English entomology*, now in his 90th year, is still hale and hearty. The Rev. William Kirby, M.A., F.R., L.S., &c. &c., visited the Shrubland gardens the other day, accompanied by Miss Rodwell, an amiable lady, who delighted in administering to the pleasures of the visit. Mr. Kirby was wheeled in his garden chair, but *would* walk part of the way; he conversed freely, quoted poetry, laughed heartily, put a number of close questions, and appeared to enjoy himself as much as possible. He appeared very much pleased when I requested his permission to write this notice for THE COTTAGE GARDENER, which I told him was much read by the clergy, and that by its means, and by quoting from it, and by translations, there could be no doubt but his friends and admirers in all parts of the world would hear and would rejoice at his being so wonderfully well in the evening of his useful career. He then suggested that it might impart some interest to his friends if the following dates were given, which he supplied himself on the spot from memory, and Miss Rodwell said she believed they were all correct. He said, "I was born on the 19th of September, 1759, and, after leaving college, I entered on the curacy of Coddendam, but the following year, 1793, I was presented to the living at Barham, where, you will find, I have been for the last 56 years." This was noted under a large oak in the centre of the garden where the parishes of Coddendam and Barham join. Another incident amused him much: he was told that his autograph in the visitor's book would be highly gratifying to Sir William and the Hon. Lady Middleton, then absent in London, and to the garden visitors generally. He then wrote, "Rev. William Kirby," in a bold round hand, a little *wary*; and, after expressing great pleasure at every thing he saw, he drove home in the cool of the afternoon very cheerfully. What a great blessing it is thus to see an aged and faithful servant of God, full of years and honour, in the possession of good health and his natural faculties, waiting patiently for "whenever the signal is given;" and how forcibly, on such occasions, the prayer of the royal psalmist recurs to the mind: "O spare me that I may recover strength, before I go hence and be no more." D. BEATON.

HOTHOUSE DEPARTMENT.

PLANT STOVE.

VINCA, SYNONYME CATHARANTHUS.—Who does not know—who can know and not admire—the beautiful

though common *periwinkle*, in its larger and lesser species, and their different varieties, clothed with glossy green foliage, or variegated with silver and golden tints, and adorned with flowers, single and double, sweetly blue and delicately white. Amid the gorgeousness of summer floral attractions, the *periwinkle* is apt to be overlooked, just as other objects, such as human flowers, of humble aspirations yet conscious worth, are not obtruded upon public gaze, but bloom the most sweetly in the retirements, and even amid the vicissitudes and disappointments, of life; so those hardy vines, or periwinkles, lowly in their growth, shine most sweetly amid the sere aspect of winter, flourishing in almost every soil, and where nought else would grow; and beautiful too are they, when spring returns the new foliage to the trees, as their pretty flowers are unfolded at your feet, and their trailing shoots form a carpet for your tread, while in the distance is heard the purling of the brook, and overhead sweet notes of love and harmony are echoed and re-echoed from tree to tree. Amid such scenes, thoughts have arisen, resolutions been made, vows registered, hopes engendered, that, if rightly directed, give a colouring of purity to our sensibilities, and a tone of integrity to our character; and hence, lovely as are the few denizens of the stove that belong to the genus, I seldom look upon them without reverting to the many associations connected with their harder types, that fringe the walk, mantle the knoll, and clothe the glade beneath the thick shade of the "greenwood tree."

The genus *VINCA*, or *PERIWINKLE*, belongs to the 5th class and 1st order of Linnæus' system, and to the natural order *APOCYNACEÆ*. The term *vinca* is probably derived from *vincio*, to bind, in allusion to the long, trailing, pliable shoots, which all the periwinkles possess, thus fitting them for ligatures upon a small scale. The stove plants are somewhat different in the appearance of their flowers, and altogether different in their habit of growth, as, with the exception of a small blue annual (*V. pusilla*), the others are small, upright, evergreen shrubs, natives of the East Indies, which have been cultivated in this country for more than a century. I do not know the reason why botanists should have given to the tender part of the family the generic name of *Catharanthus* (from *catharos*, pure, and *anthos*, a flower), but there can be no doubt that while they are altogether, so far as mere growth is concerned, destitute of those peculiarities that render the term *vinca* appropriate to the hardy species, they will sustain the title *catharanthus*, for few plants can so readily awaken impressions of purity and innocence, blended with beauty.

Were it the object of this journal to treat deeply upon botanical science, I should, of necessity, be forced to give up the office of occasional steersman, and take a seat on the side of the craft; but still a little knowledge of its general principles is necessary before you can understand the simplest description of a plant, or experience that pleasure which the investigation of its structure confers; a pleasure more elevating and enduring than that experienced by the common admirer. Take the present instance. The family of which we are treating is monopetalous in its corolla. We presume you know the meaning of all such terms, and also of stamens, pistils, &c., and, if not, we shall be too happy to make you as knowing as we are ourselves. Well, just glance at the blue flower of the larger *periwinkle*, the *vinca major*. It looks like a convolvulus. Aye, but you see no stamens and pistils adorning its centre. Why,

no, it has none. Wait a bit: observe that yellowish centre of the flower; stir it up with the point of a needle or the point of your penknife; and, lo! you will find that that yellowish marking is the back of five separate anthers, or heads of stamens, whose thready filaments are imbedded in the tube of the corolla, while the face or pollen side of each of these anthers is inverted over, and firmly clasps, the stigma of the pistil. And what a stigma! It seems like a number concentrated in one. And what a pistil altogether! No description can give you such an idea as one practical peep. Take a homely illustration. You have seen many of the columns which supported the old-fashioned round tables. The artificer has left a wide part at the base where the feet are to be inserted, the rest of the column is round and tapering; as he nears the top a wider space resembling a ring has been left, then a groove, and then another ring, wider still, on which the table is to rest; and just such an appearance does this curious pistil present, the widest part at the top being that which the anthers are clasping. Evidences of the power and wisdom of the Deity there are in the coursing of a star and the upheaving of a continent, but similar evidences appear in the structure of a plant, in the formation of a flower. Elsewhere we have winds, insects, irritability, &c., made subservient to the promoting of fructification, but here, and in other cases, we find that the stigma of the pistil cannot escape if she would from the fertilizing principle.

The structure of the flower of the *vinca* or *catharanthus*, residents of the stove, is more wondrous still. The corolla, elevating itself by a long slender tube, is expanded into a flat blossom two or three inches in diameter, divided into five segments so equally that the passing observer would take them for five separate petals; just inside the junction of the segments is a pretty ring of a different colour from the segments, and inside the ring a little hole, as if formed with a needle, the termination of the tube which supports and elevates the beautiful blossom. Beneath the little opening, and concealed by the tube from observation, are the parts of fructification, similar to what I have described as existing in the hardy species, but less conspicuous, though, if anything, more elegant, the style which supports the whorled-knobbled stigma being as fine as a silken thread. This little hole seems the only inlet for light and air. Oh! for the the wishing-cap and the invisible coat of fairy-controlling times, to get enscathed in the bottom of that slender tube, to behold the effect produced by the first rays of light through that *camera obscura* opening, and gain some knowledge as to the how a some thousandth part of a grain of pollen can traverse that tuberculated and whorled stigma, descend that long slender style, and fertilize the germens at its base!

STOVE SPECIES OR VARIETIES.—There are only three with which I am acquainted: *Vinca rosea*, rose, with purple ring; *V. rosea alba*, pure white, with crimson ring, named *ocellata* by some; and *V. alba*, pure white, with a yellowish ring. I have heard of one with variegated foliage.

PROPAGATION is easily effected by cuttings of the young shoots placed in light sandy soil under a bell-glass, and with or without bottom heat, in July.

CULTURE.—They flourish best in equal portions of rough loam and peat, with a few pieces of charcoal and a dash of silver sand. Cuttings put in now will make fine plants next season. If your room is very limited, either depend upon young plants, or treat

the old ones, in a month or six weeks, as Mr. Beaton recommends for geraniums; saving a few of the most luxuriant for blooming later. But if you have another house, where you can maintain during the winter a temperature of 40°, then you may keep large plants of these and many besides during the winter, thickly stowed together. True it is that most of the leaves will drop, but never mind, if you can only preserve a few on the points of the shoots to keep the sap in motion. Very little water must be given. Transfer them to the stove, when you can find room for them, in the spring. Give them a little more, yet still a limited supply, of water at the roots, but, instead, a humid atmosphere, and a dash of the syringe overhead. Soon, from the base of the shoots, young shoots will be protruded; when these are an inch in length, prune back the head to the young growth, allow them to stand another week, and then take them to the potting bench, having previously allowed the ball to get rather dry; then reduce the ball with a pointed stick, saving, if possible, all the fibres, but getting rid of the old soil; repot in a smaller pot, and, if you can, give them a week's or a fortnight's bottom heat. By-and-by pot again, and you will obtain specimens, ornaments alike to the stove, the greenhouse, and parlour, during summer.

FORCING.

I have just room to say, finish layering your *strawberry runners* in small pots, if you want nice fruit next March or April.

ROBERT FISH.

THE KITCHEN-GARDEN.

PLANTING.—All newly planted vegetables require, at planting time, a good soaking of water, particularly in dry weather. These soakings must also be repeated occasionally afterwards, to get the crops into free growth, taking care to apply the water to the roots, and to keep up at the same time a loose open surface by frequent scarifyings. Plants will by these means establish themselves, and make progress in spite of heat and drought.

SOWING CABBAGE SEEDS.—From the last week in July to the twelfth of August is the proper time for sowing the best varieties of cabbage ready for the following spring. The soil, which should be in a healthy and well pulverized state, should be well soaked with water twelve hours before the seed is sown, so that the water may sink into the earth to a considerable depth, which, after due preparation for sowing by raking and forking, renders it less liable to become hard and surface-bound, should very dry weather prevail. The seed should also be soaked twelve hours previously to sowing, which will be of great advantage, in dry weather particularly. It is a good system, also, to mix the seed with fine charcoal-dust previously to sowing, so that it may separate well, and thus be sown evenly and regularly. Dry wood-ashes is a good substitute for charcoal-dust, when the latter is not obtainable. In hot, dry weather, the evening is always the best time to sow, and the seed beds should be slightly shaded with boughs, pea or bean haulm, straw, or any other article of a similar description, until the young plants are just appearing above the surface, when the covering must be immediately removed, to prevent the young plants from being drawn up and weakened thereby. A slight sprinkling of water must then be applied, and a top-dressing of charcoal-dust given immediately, so that it may adhere to the young plants whilst moist, which will not only pre-

vent the attacks of the fly, but also promote and encourage the growth of the crop.

ROUTINE WORK.—Sow now a small spot, or a drill or two, of *Flanders spinach*, which will produce a good supply of leaves for autumn use; and spare spots should at the same time be chosen, in warm, sheltered situations, for sowing, about the twelfth of August, the main or principal winter and following spring crops. The earth should be well forked, and turned about in the hot sun to sweeten and pulverize, and, at the time chosen for sowing, the large clumps of earth should be broken down, manure pretty liberally applied, and either dug or bastard trenched in. The latter is our own practice, ridging it in two feet ridges, and forking it down pretty fine previous to sowing, which is done in drills, from one foot to one foot six inches apart. The latter is our distance on well prepared rich soil.

POTATOES.—The early varieties having now become pretty generally ripe enough to take up and store, the ground should at once be again cropped with coleworts, kales, and turnips. With us, the early varieties of potatoes are good, both in crop and quantity, as well as the late varieties, of which we grow a few of the best to keep up the different kinds, should there be in future any chance of cultivating them free from the destructive disease. The dry hot weather, this summer, has been particularly favourable to the potato crops in this locality; but in all that we have inspected throughout the season, we could still discover traces of the old enemy, though in a very weak and retarded form; the fine summer weather, too, seems to have weakened the symptoms still more, and the early crops are therefore sure of being good, both in crop and quantity, as well as cheap in price. Good potatoes, we hear, may now be had at 10d. per score. Our plan is, to make three samples of potatoes at taking up time: *were* (such as would do for market), *middlings*, and *chats*. The first, of course, for house consumption; the second, for planting whole again for the next year's crop; and the chats, for pigs, poultry, or other stock.

RIDGE CUCUMBERS and MELONS should be well supplied with water at the root, but by no means over the foliage. The fruit should be thinned from the former for pickling, and from the latter for preserving green.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

ALLOTMENT GARDENING FOR AUGUST.

WEEDS.—The state of the weather has been such that every one able and willing to labour will have cleared his garden or allotment holding by this time. To those who are yet in arrears we would say, lose no time in at least eradicating *seed weeds*; for this at least in mercy to yourself in the coming year, for be assured that where one weed seeds this year unmolested it will require double the amount of labour in the next year to root out its progeny. There is, however, if possible, higher reasons, or, at least, reasons having a more immediate bearing, why rambling weeds should be kept under; they exercise an injurious influence on the crop of the present year, both in root and leaf. It will require nearly as much nutriment from the soil to bring to maturity a gross thistle, or a patch of groundsel, as to produce a Swede turnip, or a good carrot or parsnip. But this is not all; by their *shade* amongst growing crops,

especially such as require all the light our British skies afford in the aggregate, they arrest or intercept the elaborating processes in a most injurious way. To those who consider this too nice a point we would say, just watch your early carrot bed next spring, and notice particularly where your best early carrots come from: not from the middle of the bed, certainly! no, although these are the tallest and strongest looking, you will find those standing rather thin on the outsides and next the light, although much weaker in appearance, the better carrots by far. It is, indeed, the same with all other crops, and whether one carrot is shaded by another or by weeds, still the effect is the same; nevertheless it is certainly more profitable to have a case of carrot *versus* carrot than carrot *versus* weeds. The fair inference from all this is, then, twofold in character:—first, weeds are at all times prejudicial, both in root and leaf, to any growing crop; and next, that there is a point at which to stop in close cropping; beyond this is not only loss of seed but a positive detriment to the crop.

CULTURE.—The hoe may still be used to advantage between all drill crops, if only to preserve a greater amount of moisture in the soil, for the cottager should remember that solid soil will dry quicker in summer than that which is loose. Deep stirring, moreover, in the centres between the rows prepares the soil for the spread of the fibres; and where the land is of a stubborn character, such culture is the next best thing to a summer's fallowing; and herein consists a strong recommendation of drill cropping over broadcast. The soil will ever be found in a superior condition under the former mode of culture, and containing of course better prospective advantages. We advise a little soil to be drawn to the stems of the mangold, at least to the long red kind, immediately; some persons dispute the propriety of this practice; we have, however, done this for years, and we know it to have a most beneficial effect, especially on very light soils. The carrots and parsnips will require no more handling until the harvesting period, unless there be any weeds amongst them; if so, let these be drawn clean out, for no time may now be lost.

FILLING VACANCIES.—One of the main policies of this season is to look over all blanks forthwith, and see that they are filled with something useful. The *Swede turnip* is the most eligible of anything, on account of its compact growth and keeping qualities; but, unless they are planted immediately, and that carefully, and watered, they will be too late to produce any bulk of crop. The next best thing, perhaps, is the York or other dwarf and compact *cabbages*. These will occupy little room, and may be stuck into any blank. It not infrequently happens that the grub has been busy with the carrots or onions; when such is the case, the blanks may be filled on the first shower. The cabbage we recommended to be sown in June will be proper for the purpose.

TURNIPS.—If any spare bed or border can be found, some turnips should be sown in the first week of August: these will supply the family all the winter until nearly the end of April. The yellow or white stone is peculiarly adapted; the Dutch also is very useful for garden culture, for none of the large topped turnips should ever be allowed a place here: they shade the ground, and are apt to elbow their neighbours too much. As these will be very liable to miss through the fly, or through drought, we advise what we generally practise, viz., to divide the seed into two parcels; to soak one portion for six hours in tepid water, and

then mix the two portions together, and sow. The soaked seed will come up nearly a week earlier than the other, and if the fly should rob these, another lot of plants will rise on their ruins; thus offering two chances. Some attention, however, must be paid to the amount of moisture in the soil, for if the soil is dusty, the seed had better remain in the bag until rain, taking care that the soil is prepared ready for its reception.

LETTUCES.—If the cottager has a pig or two, we advise him strongly to sow plenty of the Bath coss lettuce in the first week of August, not later. These, when nice plants, may be stuck into every nook or blank that comes to hand, and they will be found to produce a good bulk of pig meat through September and October, and will assist in fattening the hog. The seed should be soaked in tepid water for three hours, for it ought, indeed, to have been sown in the third week of July, in order that it might be running to seed when used; it is both more bulky and more nutritious in this state. If an open bed is to spare, or any plot where a few drills could be sown, it would be found worth while to dig in some rotten manure about six inches deep. The lettuce will thus produce a very heavy crop. The drills should be one foot apart.

SPINACH.—If the allotment holder likes a dish of spinach occasionally, he should sow a little of the prickly kind in the first week of this month; any out-of-the-way corner will do for this.

ONIONS.—A small bed or patch should be sown in the first week of the Lisbon or Deptford kind, and a small patch of the Welsh also; half-an-ounce of each will suffice: they will stand over the winter, and furnish young scallions until late in the spring. If any of the Deptford or Lisbon remain in March, they will be found very useful to transplant.

ONIONS RIPENING.—As soon as the onions begin to bend and show signs of ripening, it will be well to bend them down in order to get them early harvested, and to occupy their beds with coleworts as before recommended. We always practise this, and obtain a good crop. Those small kinds of cabbage sown in the end of June will be well adapted for this purpose, with, perhaps, some of a July sowing. We use a new broom to lay the onions with; they are, however, easily put down by the hand.

LATE PEAS.—If any of the marrowfat class have been sown, they will require their tops pinched off as soon as they reach the tops of their stakes. This will cause them to branch, and to continue long in bearing.

RUNNERS.—These must also be topped similar to the peas, and we advise the cottager to see that they are frequently watered in dry weather. No crop requires water more than this.

VARIOUS GREENS.—We hope that our allotment friends have taken care to plant some green kale and savoy; these are most useful winter things, and, as before observed, may be introduced between growing crops. They may yet be planted, but they will not grow very large after this period. Let those planted at the proper period be well earthed up; this process is of immense benefit to all the green tribes.

CAULIFLOWERS AND BROCCOLI.—The first week in August is a good time to plant a few cauliflowers, Walcheren broccoli, and the Cape broccoli. These will come into use from the end of September until Christmas.

LEEEKS.—When getting strong, these will be much benefitted by soiling up. When blanched, they make a valuable and wholesome dish, and may be cooked

and eaten as sea-kale. As an ingredient in winter soups, they are of much service to the cottager.

HEDGES.—We conclude our mouthy advice by expressing a hope that the cottager will see that all his hedges are neatly dubbed; true economy of soil demands this. The character of a cottager may in general be guessed by the condition of his hedges.

THE BEE-KEEPER'S CALENDAR.—AUGUST.

By J. H. Payne, Esq., Author of "*The Bee-Keeper's Guide*," &c.

I TRUST that I have already sufficiently insisted upon the necessity of uniting second and third swarms, so that, amongst the readers of *THE COTTAGE GARDENER* who are bee-keepers, not even one second or third swarm can be found by itself. It should be impressed upon the mind of every apiarian, "that the larger the colony at the outset the better the bees will work, and the more prosperous it will become." A stock weak at the outset *never* does well; the method of uniting, as given at page 104, is very simple, and may be accomplished in a few minutes, even by the most inexperienced person.

RETURNING SWARMS.—Returning swarms, either first or second, to their parent hives, is what I have never done myself, neither have I ever recommended it to others. It is not only attended with much trouble, and, generally, with a failure of the object desired, but also with much loss of time to the bees, and that at a season of the year when every hour is of importance to them. I have a letter now before me, in which it is stated that a swarm left a Nutt's hive on the third of June; the queen was captured, and the swarm returned. Within a few days of the time before mentioned it came out again, and was treated in a similar manner; and so it continued to go on until nearly the end of the month, when the swarm, instead of being returned to the parent hive, as had been done many times before, was hived into an improved cottage hive, where it is doing very well, but during the whole time that swarming was going on, which occupied three weeks, and these the *best three weeks* of the year, working was entirely suspended (which is always the case), and not a pound of honey was stored: whereas, had the swarm been put in the cottage hive in the first instance, from fifteen to twenty pounds of honey would, in all probability, have been collected by it in that time. I well remember that an apiarian friend in Norfolk, some years since, had a stock of bees in a favourite hive, which, very much against his wishes, and notwithstanding every means having been taken to prevent it, sent out a swarm. He captured the queen, and returned the swarm; after a few days the swarm came forth again, and was treated in the same manner; and it went on to swarm for either seven or nine times, and was returned as many times, except the last, when it was put into a new hive. Thirteen queens were captured and destroyed during this process, very nearly a month was spent in swarming and being returned, and, consequently, no work was done during that time, the result of which was that, the best part of the season having been lost, neither swarm nor stock were of any value. I would, therefore, say, let all be done that can be done to prevent swarming, by giving room and ventilation, which with me has very rarely, indeed I may say *never*, failed. But if, after every means have been used to prevent swarming, a swarm should come off, never attempt returning it, but hive it by itself in the usual manner.

TAYLOR'S AMATEUR'S BAR-HIVE.—In this hive swarms may be returned successfully in the following manner: as soon as the swarm has left the parent stock, the combs of which will be left almost without bees (except brood in the cells), with the help of a few puffs of tobacco smoke from a cigar, proceed to take out each bar with the comb attached to it, and wherever a queen cell is seen cut it out, and return the bar to its place—this operation may perhaps occupy ten minutes. When this is done return the swarm, and the queen, finding no successor in the hive, will not attempt leaving it again. Queens' cells may readily be distinguished from those either of drones or workers—the two latter being in a horizontal position, while those of the queens are perpendicular, and upon the *edges* of the combs.

I am now enabled to make a very satisfactory report of this hive, having three of them at work in my own possession, and five others amongst my friends, all of which are doing remarkably well. The combs in every one of them are worked evenly upon the bars, and the upper boxes of several of them are already nearly filled with honey. Indeed, it is the opinion of my friends and myself that the bees work with greater vigour in these boxes than in any other kind of hive.

I may here observe that Mr. Taylor has lately made a very considerable improvement in this hive by the addition of another box, which, in good seasons, may be placed *between* the lower and upper box, before the latter is quite filled.

ENTRANCES TO HIVES TO BE NARROWED.—Towards the end of this month, it will be necessary to contract the entrances of the hives, that the bees may be better enabled to defend themselves from the attacks of wasps. In Taylor's hive these things are supplied, but, in the cottage hive, I have found wedges of cork of different sizes to answer remarkably well.

WASPS' NESTS TO BE DESTROYED.—It will be well to have diligent search made in the neighbourhood of the apiary for wasps' nests, and to have them destroyed, for which purpose spirit of turpentine appears to answer remarkably well. The usual method of procedure, I believe, is to put a small quantity into a common wine bottle, to put the mouth of the bottle into the hole leading to the nest, and surrounding it with earth; very little turpentine is required, merely as much as will wet the sides of the bottle; if applied in the evening, every wasp will be dead by the following morning: in no instance have I known it to fail of the desired effect, except in cases where the nest is deep in the ground, or at a greater distance from the mouth of the hole than was anticipated. A partial failure may sometimes occur when there happens to be two entrances to the nest instead of one, but a second application on the following evening is sure to prove effectual.

ADDITIONAL ROOM.—It will be quite useless to give additional room to any colony of bees, be they ever so prosperous, after the month of July is ended; for the honey season is now fast drawing to a close, and the population of the hives very much upon the decrease, not only from the killing of the drones, but by the death of numbers of the workers.

REMOVING GLASSES AND SMALL HIVES.—Small hives and glasses that are filled, and the cells sealed up, may now be taken off and stored in cool places, observing to keep them in the same position as when standing upon the stocks; but supply no fresh ones—the honey gathering season being now chiefly over.

KNIFE FOR CUTTING OUT COMBS.—This knife, which is so simple in its construction, and so easily used, deserves to be made generally known. Gelieu, to whom apirarians are much indebted, tells us that in Switzerland it is commonly used, and that the combs, from hives of any shape or materials, are extracted without any difficulty. It is formed of a strip of steel, two feet long by one-eighth of an inch thick; the handle is twenty inches long by half an inch broad. The turn-down blade, of two inches in length, is spear-pointed, sharp on the edges, and bent so as to form an angle of ninety degrees with the handle; the other blade is two inches long by one and a half broad, and sharpened all round. The



broad blade cuts and separates the combs from the sides of the hives; and the spear point, which is also sharp on each side, admits, from its direction and narrowness, of being introduced between the combs to loosen them from the top of the hive.

MY FLOWERS.

(No. 36.)

I HAVE been particularly struck, when travelling, by the fondness for flowers observable at the railway stations, with very few exceptions. Wherever a portion of ground, however small, can be appropriated to a flower-bed, there I have almost always remarked one. I have seen a strip of border full of flowers immediately beneath the platform, close to the line of rails; I have seen a glowing border smiling among the unearthly-looking places that usually surround a station; and I have sometimes seen really beautiful plants decorating the office-window. Even the box of the policeman, in its loneliness, is surrounded by a border, in which, if nothing else can find space to grow, a stock, a polyanthus, and a wall-flower, are sure to be cherished; and, in every instance, that little petted border looks rich and gay. All these things mark the public taste—they evidently show that *man* has a genuine love for flowers—for a railway station is almost the only part of the habitable globe, except, indeed, it may be a lawyer's office, where woman's influence is neither seen nor felt. No taste of her's is brought to bear upon any part of the system; the joys and sorrows of those regions belong exclusively to man, and I therefore notice, with interest and pleasure, how universally the love of flowers prevails. This shows that every endeavour to improve this harmless enjoyment, which cheers and employs many solitary hours, must be useful and beneficial; and perhaps THE COTTAGE GARDENER may instruct and amuse the railway gardener in his lonely watchings, and assist to beautify and render more productive the portion of ground he cultivates—for useful gardening should, if possible, accompany that which is only ornamental. A few vegetables would increase the interest of the little garden, and to the wife and family would be a certain good.

Almost every kind of flower is now in full beauty. The borders are really teeming with sweetness; and the soft refreshing summer breezes waft it into our very rooms. The delicious scent of the lime blossoms, though at some little distance, really perfume the house; and when we approach the tree it is almost oppressive. To stand beneath a lime-tree, in the flowering season, is quite like standing within a bee-hive. Every little flower attracts one of these busy insects, and the 'hum' is like that of a hive

when a swarm is about taking wing. When we listen to these little lively creatures, and watch their diligent and untiring movements, how it condemns the sloth and inactivity of the "reasoning animal!" Ah! how much more the spiritual! Did we but "improve the shining hour," did we but labour for *our* futurity as the bees labour for theirs, how well would it be with us! Did we but cast our eyes from the lime-blossom to the earth, where the ant hurries on her thrifty errand, and "consider her ways," we might learn a deep lesson of wisdom too; she has, "no guide, overseer, or ruler," yet "she gathereth her food in the harvest." We have a Father who guides, over-sees, and rules, yet the meat we are so ready to gather perishes, and that which "endureth," we trifle with or throw madly away.

One of our sweetest summer plants, and a useful one too, is the lavender. Every garden should possess at least one bush of this highly-scented evergreen; and as a light and poor soil suits it best, no one need be without it. It may be increased by cuttings or slips of a year's growth as well as of the present season. May and June are the *proper* months in which to effect this; but I have little doubt of their doing well in July also, provided the slips are kept well watered and shaded from the light. Slips and cuttings must be from five to seven inches in length, and the lower leaves must be stripped off to the middle of the stem. They may be removed in September or October. July is the month for gathering the flowers, either for drying or distillation. They are very agreeable in drawers, work-boxes, &c.; and, in sick rooms, the stalks, when burnt, afford a very pleasant scent, by no means overpowering to the patient. In poor soil the lavender is much more fragrant than in rich soil, which causes it to grow luxuriantly, but it is then frequently unable to endure the severity of winter. A poor soil strengthens it and prolongs its life. Hence we see it flourishing so contentedly in the poor man's garden, and smelling so much more sweetly than in the borders of the rich. Do not our hearts somewhat resemble the lavender? Are not days of adversity far more favourable to our spiritual growth than those of perilous prosperity? and do not Christian graces then give forth a sweeter fragrance? Let those among us who feel the soil in which their Father's hand has placed them to be cold and ungenial, gather a sprig of their spicy lavender, and learn a lesson from its sweetness. They will then, perhaps, bear more cheerily the adverse seasons through which they pass: knowing that He who forms the plant best knows its temper, and the treatment that is good for it. The lavender is in truth a desert plant; it scents the desert winds both in Africa and Asia, where it grows wildly. How grateful to the English traveller—to the devoted missionary, toiling along his holy but weary way—must be the sight and smell of this well-known plant, recalling to their minds their cool sea-girt home, its cottage gardens, and all its peaceful pleasures. Few flowers grace the desert, yet, even in those terrible regions, one fragrant plant is sent to cheer and refresh the heart, and to remind us that no situation of our lives can be so dreary but that our Father will plant a blessing there.

One very beautiful flower is worthy a place in a lady's garden, though little esteemed, and wild in its origin—I mean the snapdragon. The deep crimson variety is particularly rich and handsome, and in some cottage gardens I have seen them splendidly bright. The formation of the flower, too, is curious,

and it contains within its closely folded petals a sweet liquid, of which insects are particularly fond, and which seems placed there and guarded, as if by closed doors, for their especial use. The little creatures force their way in, but the structure of the entrance forbids their return, and they effect their escape by gnawing through the extremity of the flower. What a beautiful, what a merciful provision, for the myriads of little helpless creatures formed by the Hand divine! Nothing made by Him is ever forgotten, nothing is so small but His eye sees and His mercy sustains it! If not for its beauty, yet for its use and for its instruction, let us cultivate the interesting snapdragon. There are white and pink varieties—all lovely. They will spring gaily and contentedly from the very wall that surrounds our garden, thus helping to beautify what is unsightly in itself; and providing, as they do, for the wants of the smallest of living creatures, do they not loudly and reproachfully call upon us to trust fully in Him, whose word has declared, "bread shall be given thee, thy water shall be sure." Let the cottage gardener listen again to the language of the flowers of the field, and ponder these things in his heart.

GARDEN HEDGES.

As in a recent Number (No. 39) you call the attention of cottagers to their garden hedges, I beg to add my testimony to the importance of that apparently small consideration, but which, I further beg to say, is anything but trifling. Whoever goes over a farm, the fences upon which being neglected and bad, does not at once pronounce the occupier a bad manager? The attention now so conspicuously paid thereto throughout my neighbourhood sufficiently shews its importance amongst modern improvements. I reside in one of the best cultivated districts in Lincolnshire; and the recent general amendment of our quickest hedges is astonishing, by the plan of slashing (not clipping) them, which, being done twice a year, when their periodical growth is completed, is easily performed by a slashing hook (a one-handed instrument), with which an active skilful labourer, in the employ of one of our best agriculturists, I am assured, can slash *one mile* of hedges in a day, if undertaken when the shoots are young, which must be the case if done twice a year. Under this gentleman's recommendation, the towing-path fence of an adjacent canal (comprising a length of thirty miles) was put under this process two years ago, and now looks more like a superior garden fence than that of a public work, and this more from the *mode* of slashing than the slashing itself. It is found so efficient that nearly all the quick hedges about us are put under similar treatment, with the certain results of good and bad workmanship. The *mode* is simply this: it is done with a *slope* upwards, so that a hedge five or six feet high, having a base of three feet at the ground, shall gradually rise in a cone-like fashion to a point, or within three or four inches, at the top. The result is, the thorn of which the hedge is composed grows from the very bottom to the top, which it never does, nor will do well, if cut straight down, leaving breaks and defects along the entire fence.

I was asked by a friend, some years ago, what I would recommend as a division fence to some gardens he was about to allot to the labourers upon his estate. I at once said quickest, not to exceed five feet in height, or more than two feet in width at the bottom—to be clipped in a cone-like fashion to a point at the top. He adopted the plan, and the

result is most satisfactory with thirty gardens, upon about six or seven acres of land. I have found the sloping of a laurel screen in my own garden very effective, which screen, when previously pruned *straight*, never did well.—Q.

ITALIAN RAY GRASS.

It is fourteen years since I first made trial of the Italian ray grass, and with very satisfactory results where the soil was suitable. It is only a biennial, and therefore is not suited for an ingredient in permanent pastures or meadows. It is not improbable that the duration of this grass may be prolonged, in like manner as wheat, it is said, may be rendered perennial, by continually cropping it before it has completed its flowering state, and by abundance of liquid manure. A moist soil, or abundance of artificial moisture, seems to be most congenial to it. A silicious soil, or a mixture of sand and clay, seems to suit it best: its produce on a dry, light, calcareous soil is very little superior to that of common ray grass. It has been doubted whether this grass be properly a *Lolium*; and, accordingly, Joshua Rodwell, Esq., of Alderton, near Woodbridge, has separated it from that genus, and has assigned it to a new genus, under the name of *Folium*, and he has called this species *Trifolium*, in which nomenclature the Agricultural Society's publishing committee acquiesce. To what circumstance it owes its specific name, he, Mr. Rodwell, has not explained. This gentleman states, in the 2nd vol. of the Royal Agricultural Society's Journal, p. 214, and in vol. 5, p. 286, that he sows four pecks of seed to the acre. Mr. Dickinson, in vol. 8, p. 573, of the same Journal, states that he sows two bushels (but thinks three bushels is better), by a broad-cast machine; or, if sown by hand, four bushels to the acre; and, as his success has been unexampled, I should prefer either of these two first mentioned quantities to Mr. Rodwell's four pecks. Four bushels, however, seems excessive. With respect to the time and manner of sowing, it may very well be sown with any spring corn without injury to the corn crop, in which case it will yield some feed between harvest and winter; or it may be sown by itself in July or August, or with any serial crop, or flax, that shall be sown for green meat, between the sowing of the spring corn and September, but the earlier it is sown the more vigorous the growth. If abundance of liquid manure can be supplied, its powers of production seem to be almost unlimited; and no plant appears so likely to enable a cottager to keep a cow on a small allotment, if he can command an ample supply of sewage, or other fertilizing matter; but I fear it is rarely found that, with all the industry and carefulness which a cottager can bring to bear on the subject, he can make more manure than his garden will absorb for the production of culinary vegetables. If there be any surplus, it could not be better bestowed than on Italian ray grass. The plant is most prolific of seed; and, though the first purchase is expensive, the cottager will be to blame who does not provide his future supplies of seed from his own growth.

W. P. T.

PLANTS UNDER TREES—CYCLAMENS, &c.

THERE are two plants, both of the same genus, which I have never seen in any cottage garden, and not often in the garden of any amateur, though they are very pretty, quite hardy, and very easily cultivated, or, rather, as I shall presently shew, want no

cultivation at all. The plants to which I allude are the Ivy-leaved Cyclamen, *Cyclamen hederifolium* (*C. europæum* of Sir J. Smith and others), and the *Cos Cyclamen*, *C. coum*.

I need not tell you, but it may be necessary that I should state, for the information of some of your readers, that *C. hederifolium* blooms in August, when most other plants are out of blossom; the flower, if not showy, is very elegant; the foliage, which appears after the flowers, is also a great recommendation to this plant, for the form of the leaves is very handsome, they are beautifully marked, and preserve their freshness during the autumn and winter, and early part of the spring, that is to say from September to April or the beginning of May. The leaves of the *Cyclamen coum* also appear in the autumn, and, like those of *C. hederifolium*, retain their freshness through the winter; they are also very handsome; the upper surface is of a bright green, and the under surface is tinged with red. The flowers appear early in the spring, or, rather, in the latter part of the winter, when few plants are in blossom except the snowdrop and the winter aconite (*Eranthis hyemalis*). If I remember rightly, *C. coum* was in bloom in my garden in January last.

Both of these plants are raised from seed as easily as mustard or cress, provided the seeds are sown as soon as they are ripe and thoroughly dry. I will now explain what I mean by saying that these plants need no cultivation. I planted, some years ago, a few plants of both these species of *Cyclamen* in a bed shaded by a small Cedar of Lebanon, where they have sown themselves in the greatest profusion; a considerable part of the bed is literally paved with the tubers of *C. hederifolium*, and *C. coum* is not much less abundant. The seeds of *C. coum*, and perhaps also those of *C. hederifolium*, seem to germinate in the sear and fallen leaves of the cedar, and afterwards to strike root in the ground; but I find that these plants increase almost as rapidly in a bed in which I have a few American plants. I mention this circumstance because it appears to me that if these plants had no other qualities to recommend them, they are valuable on account of their growing and thriving under the shade and drip of trees; indeed, such a situation seems to be peculiarly favourable to them, as it is to many others, viz., those which grow naturally in woods and thickets. I believe that those parts of a garden which are overshadowed by trees are often considered as lost ground, yet I think that, if a proper selection of plants were made, a very flourishing and gay flower-garden might be formed under the trees of a very thickly planted orchard. I will mention a few plants which, besides the cyclamens, I have found by experience to be well suited to such situations. The common primrose, snowdrop, winter aconite, wood anemone, the yellow anemone (*Anemone ranunculoides*), the various species of convallaria, as the lily of the valley (*C. maiialis*), and Solomon's seal, *C. polygonatum*, *C. multiflora*, *C. bifolia*, &c.; several of the gerania, as *Geranium silvaticum*, &c.; tutsan (*Hypericum androsaemum*), *Hypericum calycinum*, and probably several other hypericæ; nettle-leaved bell-flower (*Campanula trachelium*); fetid gladywin, *Iris fetidissima*; that very beautiful and curious plant the lady's slipper (*Cypripedium calceolus*)—this plant is, however, I believe, rather scarce, and will not thrive in every kind of soil; to these may be added several of the ferns. To the few plants which I have here mentioned, the greater part of which are very common and not very

showy, might be added a multitude of others, many of which are very beautiful.

May I be allowed to suggest that a list of handsome British and foreign plants, which would grow well under trees, might be acceptable to some of your readers, and that perhaps Mr. Appleby, or some other of your contributors or correspondents, would have the kindness to furnish us with such a list.

You are, I doubt not, aware that *Cyclamen hederifolium* is by some considered to be a British plant; Sir James Smith has given it a place in his *Flora Britannica*, and mentions one habitat, viz., Bramfield, in Suffolk, but expresses a doubt of its being a genuine native. I will add that a gentleman, with whom you are perhaps personally acquainted, but whom I conclude you know by name, Mr. Masters, a most respectable and ingenious cultivator at Canterbury, informed me many years ago that *Cyclamen hederifolium* of every shade of colour, from a deep crimson to a pure white, had been found growing in a "shave" or "shaw," i.e. a small wood, near Maidstone, for the length of a quarter of a mile. Whether it is still to be found in that habitat I do not know; I fear not, for Mr. Masters at the same time told me that some of the London gardeners had discovered the treasure, and that one of them had carried away a bushel of the tubers.—REV. EDWARD SIMONS, *Orington Rectory, Norfolk*.

EXTRACTS FROM CORRESPONDENCE.

VILLAGE HORTICULTURAL SHOWS.—As a proof that what I stated some time back respecting the importance of village horticultural societies is correct, I beg to hand you a report of a show held in a small village in the north of England. You will see that there were some good varieties of tulips exhibited, as well as other things.* Previous to some eight or ten years since, the village alluded to was one of the most wicked places that could be found. It was no uncommon sight to see, on leaving the house of God, which was situated on a "green," a number of the most depraved of men collected round a cock-fight, dog-fight, or even a man-fight, giving utterance to the most horrid imprecations and blasphemy. Now, some of those men who once were at the head of all descriptions of vice, are the principal exhibitors, and are remarkable for their Christian bearing and industrial habits. Pieces of ground, which then

* ETAL HORTICULTURAL SPRING SHOW.—The anniversary of her Majesty's birthday was celebrated as usual at Etal, on Thursday the 24th May, by hoisting the royal standard in the morning, and firing a royal salute of twenty-one guns from the Castle at twelve o'clock; and in the evening a dance took place on the village green, which was kept up by the villagers and others in a spirited manner until nearly eleven at night. It was intended to have held the annual show of tulips, &c., on the same occasion, as was done last year; but the backwardness of the season, owing to the recent ungenial weather, rendered it necessary to postpone it until Tuesday the 29th, on the afternoon of which day the show took place. Mr. Robert Greenfield, gardener to Richard Craster Askew, Esq., Pallisohm; Mr. Henry White, gardener to Thomas Friar, Esq., Grindon Ridge; Mr. John Ferrier, gardener to George Carr, Esq., Greenlawalls; and Mr. William Davidson, gardener, Grindon, officiated as judges; and their awards, which gave general satisfaction, and were read over to the public in the show room shortly after six o'clock by Mr. Paxton, the acting manager, were severally as follows:—For the best six tulips, with white grounds, (for Lady Frederick Fitzclarence's prizes), to Mr. John Sutherland, for Lady Creve, Elby's Prince Albert, Princess Sophia of Gloucester, Rose, Marina, Vanquisher, and Verrius. For the best six tulips, yellow grounds, (for prizes given by the Hon. Miss Fitzclarence), to John Sutherland, for Dickson's Duke of Devonshire, Polydora, Carter's Leopold, Strong's Benjamin, Waterloo, and Lawrence's Vesuvius. Best six tulips, of sorts, (for Mrs. Gregson of Loxburn's prizes), to David Young, for Matilda, Carlo Dolce, Strong's Benjamin, Duke of Wellington, Flora, and Marcellus. There were many other prizes for ranunculuses, anemones, pansies, geraniums, window plants, nosegays, and kitchen-garden vegetables.

bore nothing but crops of nettles and thistles, are now clothed with the gayest beauties of the floral kingdom, or groaning under their loads of the finest vegetables that can possibly be grown. It is astonishing that in such a short space of time such a revolution could take place. The houses, which were once dens of poverty and filth, are now changed into neat white-washed cottages. The public-house is giving way to the reading-room, and the cock-fights to the shows. And all this I believe to have been caused by the establishment of a horticultural society, which was first started by the father of the writer, and sustained by the liberality of a noble lord (F. Fitzclarence) and his amiable lady and daughters. The village is now a glorious example of what may be done if the rich would but lend their aid.—J. L. MIDDLEMISS, *Gardener to A. Pott, Esq., Tunbridge Wells.*

PYRUS JAPONICA.—In THE COTTAGE GARDENER, June 21st, page 147, in answer, I apprehend, to Robert French, it is said, "the seed of the *pyrus japonica* is useless." Three years since I raised a large potful of seedlings of the *pyrus japonica* from seed, ripened on a south wall, at Ashley, Hants. The ripe fruit of this *pyrus* makes an exquisite preserve, much superior to guinea marmalade; but the fruit itself is very hard and harsh, and requires more stewing by far, to make it tender, than the common guinea does.—W. P. T.

[When we said that the seeds of the *pyrus japonica* are useless, we only meant that other modes of raising it are more unfailing and rapid.—Ed. C. G.]

LIQUID MANURE OF SOOT.—A correspondent sends the following recipe for making this fertilizing liquid: Soot one pound, rain-water five quarts, quicklime half a pound. Mix the whole together, and immediately cover the vessel in which it is made quite close up; stir it once every day for three days; if not quite clear add a little more lime (when it will be fit for use); a little, say four ounces, sulphuric acid may be added to fix the ammonia. When required for use, add one-half water to the solution.—H. S. D.

[We think the lime a decidedly injurious addition, helping to drive off the ammonia of the soot; and adding the sulphuric acid would only partially mend the matter, for it would unite with the lime instead of the ammonia.—Ed. C. G.]

SHADE FOR FLOWERS.—Seeing in your last Number of THE COTTAGE GARDENER the description of a

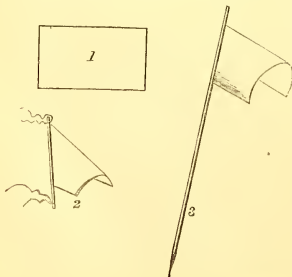
shade for blooms, I beg to inclose a rude drawing of one I invented last year, which fully answers the purpose, and will, I think, be found less cumbersome and expensive, and which the merest tyro will be able to make. Figure 1 represents a piece of pasteboard (old hat-boxes will be quite as good,) about eight inches by six, less or more, for I make them of different sizes. By bringing the two bottom corners together, so as to overlap a little, the pasteboard can be nailed top and bottom to a thin lath of wood, as in fig. 2, which can be tied at the required height upon a tall flower-stick, which should be squared a little to make it set firm; or it may at once be tacked to the stick as shown in fig. 3; but I advise the former method to be adopted, as they take up less room when stowed away for another season. These shades will endure heavy rains if the pasteboard be moderately stiff, and will last several years. I have used mine for tulips two seasons; and they will do equally well for the ranunculus, carnation, rose, pink, and dahlia.—JOHN BATTERSBY, *Mansfield.*

[This shelter would be rendered more durable by being painted over with the composition described by us at p. 123.—Ed. C. G.]

SLUGS.—I have tried soda-ash for slugs, at the rate of half a pound to six square yards, and found it drive them away or kill them, and very much benefit the strawberries that were planted on the bed. I think our slugs are different from your's; we never found them above ground, though we have looked for them with a candle at night.—HENRY SANDFORD.

PLUMBAGO LARPENTIE AND HYACINTHS.—Mr. Beaton has kindly supplied this week some useful information respecting the management of the *Plumbago Larpentie*, and if I may be allowed to suggest an addition, it is to peg down all the under offshoots, treatment which succeeds admirably in covering the pot, and adds greatly to the beauty of the plant. We have some very fine specimens in this town; in fact I saw this morning, at Maenitrie's, more than four dozen strong healthy plants, full six inches high, all waiting for customers, at eighteen-pence each. I really wish times were better for the sake of the poor nurserymen, and also that all who had the means had alike the disposition to encourage this useful class of men. I have been thinking also how much we might add to the circulation of THE COTTAGE GARDENER by advertizing it with our tongues. I always make a point of speaking of and recommending it to all my friends, and am selfish enough never to lend it, except for a sight, to any one that has the means of purchasing the same. Pray recommend your readers to get some boxes made for *hyacinths*. About two dozen mixed bulbs in a box has a splendid effect.—J. H. H., *Tunton.*

URINE AS A FERTILIZER.—Of the many forms of liquid manure, urine must rank as one of the most powerful. Liebig observes that, "in respect of the quantity of nitrogen contained in excrements, 100 parts of the urine of a healthy man are equal to 1300 parts of the fresh dung of a horse." It has further been found, by analysis, that 1000 pounds of urine contains 68 pounds of dry fertilizing matter of the richest quality; or, as nearly as possible, 1 part in 15 of fertilizing matter. Again, the annual urine of two men is said to contain sufficient mineral food for an acre of land, and mixed with ashes will produce a fair crop of turnips. One hundred parts of wheat grown on a soil manured with cow-dung, which contains only a small proportion of nitrogen, afforded only 11.95 parts of gluten, or that constituent of vegetable matter which contains the same elements,



and is apparently identical with animal fibrin, and 62·34 parts of starch; while the same quantity grown on soil manured with urine yielded the maximum of gluten, namely, 35·1 per cent., or nearly three times the quantity. Human urine has greater manuring value than that of the cow, horse, or sheep: its salts contain above 8 per cent. of phosphates, which are entirely absent in the urine of animals, excepting that of the pig, which contains phosphoric acid. These facts are much in favour of the occupier of a small garden or farm, and such we suppose the cottager to be, as it is frequently a question of difficulty to decide what shall be done with the house sewage; whilst on the other hand, solid manure being sought after by the farmer is expensive, and to a certain extent difficult to be obtained. In some cases in England, and very generally in Holland, it has been found profitable to collect the whole of the refuse of the house together, and thus the dilution, which will be found necessary in using urine, will be effected. The fat contained in the water which has been used for culinary purposes contains carbon, which in vegetable substances used as food (when in the dry state) amounts by weight to nearly half the whole together. Soapsuds after washing, as well as water used for personal ablution, are also valuable on account of the alkali they contain, which, although its proportions are smaller, is nevertheless a necessary element in the formation of plants. As to the condition in which urine should be applied, there is some difference of opinion; the application of chemistry, however, shows that a loss of some of its most valuable constituents is sustained by allowing it to ferment, as sulphuretted hydrogen is generated as putrefaction proceeds, and when this gas is emitted, a large quantity of ammonia is also given off with it, which, of course, is objectionable. There is, therefore, a good reason for the use of fresh urine as a manure, in order that the more volatile parts may be given in their full proportion to the ground, and not dissipated in the atmosphere. I am informed by a gentleman in Suffolk, that he has made experiments with house sewage, and also with the drainage from his farm-yard buildings, and he finds that for grass, mangold wurtzel, and other green crops, the former is decidedly the best; this he very justly considers to be attributable to the quantity of ammoniacal salts contained in human urine. It now remains only necessary to bring these cursory remarks to a practical conclusion, by suggesting the importance of every one possessing ever so small a farm or garden providing some kind of receptacle for liquid manure. Let not the cottager be laughed out of the purpose once formed of preserving every drop of liquid which may be valuable as a fertilizer. There will no doubt be some to ridicule, as was the case with respect to a small but wise farmer in Surrey, who was for a time the butt of his neighbours because he collected all manner of "nasty stuff" in an old barrel in one corner of his yard; but ridicule soon gave way to surprise, not unmixed it may be with envy, when the results of the distribution of the contents of the obnoxious cask were seen.—F. E. W., *Kentish Town*.

SCRAPS.

BEAUTIFUL BRITISH PLANTS.—*Viola odorata* (Sweet Violet).—This fragrant gem, which adorns our dry hedge banks in early spring, should be grown in quantity in every garden for the sake of its flowers,

being in great request for their fragrance. The double flowered, as well as the white variety, are also general favourites.

Viola hirta (Hairy Violet).—A very interesting plant, with pale blue flowers; occasionally met with in dry gravelly woods.

Viola canina (Dog Violet).—This plant is noticed on account of a white variety of it being in cultivation, of great merit as a rock plant, with small dark green foliage, and abundance of beautiful white flowers.

Viola lutea (Yellow Violet).—Another of those interesting little plants which should find a place wherever good rock plants are grown.

Viola tricolor (Heartsease or Pansy).—An insignificant weed met with in dry gravelly cornfields. Noticed on account of all those splendid varieties which adorn our gardens and plant exhibitions having originated from it. When the parent and offspring are contrasted, the skill of the florist is exhibited to surprising and triumphant advantage.

Tamarix anglica (Tamarisk).—A spiral growing shrub, found on the south-west coast of England, with beautiful spikes of pink flowers. No shrubbery should be without it. We are informed that on the Lizard, in Cornwall (from which we have specimens), that it is plentiful.—*S. Durham Advertiser*.

NARROW TURF EDGINGS.—Mr. Duncan, gardener to J. Martineau, Esq., of Basing Park, Hants, has adopted, and recommends, in forming a geometrical flower garden, that the edges of the beds, to separate them from the gravel walks around, should have these edgings. The best turf for the purpose, he says, is that composed by the finer grasses, such as is found on sheep walks, and the Hampshire chalk downs. The width of the strips only one inch, cut regularly and uniformly by holding firmly upon the turf a lath of that width, and passing a sharp knife down each side. The soil beneath the edging should be sterile to keep the grass dwarfish. Beat the turf only slightly when laying it down, and keep it clipped with the garden shears on each side, so as to keep it pyramidal. Mr. Duncan says he has had these edgings for thirteen years, and says he knows none equaling it in neatness, appropriateness, freedom from trouble, and from insects; to which he might have added cheapness.—*Hort. Soc. Journ.*, iv. 190.

PERMANENT STUDS FOR WALL-TREE TRAINING.—Mr. Fleming, gardener to the Duke of Sutherland, at Trentham Hall, recommends these as much preferable to the old system of nails and shreds. For studs he uses the common cast iron nails with square heads, and ties the shoots to these with shreds of bast mat. For fan-trained trees he places the studs eight or nine inches apart in every course of bricks, but for pear trees trained horizontally he places the studs in every second course. To prevent corrosion, the nails before using are heated red-hot, and in that state thrown into boiled oil; and for the sake of appearance the studs are put in quincunx order, a stud in each row being opposite the middle of the space between two studs in the row above and in the row below it. The advantages of this system, Mr. Fleming says, are avoiding all harbour for insects, economy, saving of time, and neatness. 100 square yards of wall require 5000 cast iron nails, which are equal to 50 lbs weight, at 1½d per pound. (*Journ. Hort. Society*, iv. 193.) A correspondent, without appearing to be aware of Mr. Fleming's plan, writes to us as follows:—"I beg to give you a piece of information as to my mode of nailing my wall trees,

which I have but lately adopted, and which I have never seen or heard of elsewhere, but which to me seems to have many and great advantages. My plan is first to drive a nail into the wall, and I then take a piece of the metallic wire, the same used for tying up flowers, and having formed a loop round the shoot to be nailed, making the loop *sufficiently large* to give the shoot full room to swell, (which at the first I was not sufficiently careful to do, and rather nipped the shoots,) I then twist the other end two or three times round the nail. The metallic wire is perhaps a little expensive at the first, yet it seems to me attended with as many advantages as will repay the outlay.* The wall is not so torn about as in unnauling; there is no occasion to take out the nail, merely untwisting the wire; the shoots are not so shaded; there is not the same harbour for insects; it requires much less time and trouble of an amateur like myself, and in this way is a much pleasanter operation, and the wall looks every way neater. What suggested it to me was, from my having seen some part of my walls had copper wires fixed to them; I found, however, on tying the shoots with bast, I could not fasten them so as to prevent them moving backwards and forwards; and it then occurred to me that the metallic wire would give a firmer hold, and this again suggested making use of it to fasten to nails, and which I now like much better even than the copper wire. I so much like it that, unless for some good reason, which I do not yet see, I purpose using it to my wall trees."—S. T. *Ipswich*.

BEE STINGS—HOW CURED.—The only *positive* and *immediate* cure for a bee-sting, that I have ever heard of, that may be depended on in *all* cases, is **Tobacco**. This remedy was recommended to me as an infallible cure; yet I had but little faith in it, still I tried it, and as I supposed, properly, and found little or no benefit from its use. I reported its failure to cure in my own case, to my informant, and he stated that I had not applied it thoroughly, as I ought to have done; that he was certain that it would be an effectual cure, never having known it to fail in a single instance, when correctly applied. The next time I got stung, I applied the tobacco as directed, and found it to cure like a charm! The manner of applying it is as follows: Take ordinary fine-cut smoking or chewing tobacco, and lay a pinch of it in the hollow of your hand, and moisten it and work it over until the juice appears quite dark coloured; then apply it to the part stung, rubbing in the juice, with the tobacco between your thumb and fingers, as with a sponge. As fast as the tobacco becomes dry, add a little moisture and continue to rub, and press out the juice upon the inflamed spot, during five or ten minutes, and if applied soon after being stung, it will cure in *every* case. Before I tried it, I was frequently laid up with swollen eyes and limbs for days; now it is amusement to get stung.—*Miner's American Bee-keepers' Manual*.

* Why not use narrow strips of very thin sheet lead? We always use these strips for training to trellises.—Ed. C. G.

TO CORRESPONDENTS.

GERANIUM CUTTINGS (*Rep. P. W.*).—Any light-soiled border exposed to the sun will answer for striking these. We fully intend to have a series of articles on the management of pigs, cows, and poultry, so soon as we can find those who have practical knowledge to write on such subjects. We shall be very glad to find parties who will do so.

ROSE CATERPILLARS (*A Parson's Wife*).—We are very glad that the white heliocyte powder, which we recommended you to try, has proved efficacious in destroying the little green caterpillars which eat off the green surfaces of your rose leaves, leaving nothing but their nerves a

bare skeleton. These caterpillars are the larvae of the *Tenthredo ethiops* (*Scandria ethiops* of some), a small black Saw-fly, having black wings.

STRAWBERRY TILES (*J. Roberts*).—As we do not know you, except as obliging us with your advertisement, we cannot be actuated by "malice-sauce." With similar propriety, you charge us, in the same letter, with saying what we "know to be false!" and though this will not influence our future judgments upon your inventions, yet it obliges us to request that you will never again address us upon any subject.

POTATOS (*A Subscriber*).—The slices of your Ash-leaved kidney were completely dried up, and acted as waters to stick together the pages of your letter. You describe them as having a black circle in their centres. This is not the disease, or, as we usually term it, the potato murrain. The black circle, which will terminate in hollow centres, occurs very frequently in over-luxuriant potatoes, which yours seem to be, for you say the stems are "a rich dark green, and succulent," which ought not to characterize the Ash-leaved kidney at this season; and you *murred* the ground for them. We think your potatoes quite available for food, and they will keep for seed if they have only hollow centres. Do not take them up until the stems are turned yellow.

PROPAGATING FUCHSIAS (*J. M., Pentonville*).—These, as well as myrtles and geraniums, are propagated by cuttings. A hot-bed is not required for striking these. See p. 147 of this volume, and the references therein given. For fuchsia propagation, see Mr. Beaton's excellent directions at p. 221 of vol. 1.

GERANIUMS AND PELARGONIUMS (*Rep. P. S.*).—"Putting these out after flowering," does not mean taking them out of their pots, but only placing them outside of the greenhouse. You should sow the seeds of these and of pelargoniums now, or as fast as the seed ripens. *Geranium* is such an old-established name, that it is not possible to apply it indiscriminately to geraniums and pelargoniums. They all belong to the natural order *Geraniaceae*, and were by the older botanists included in one genus, but later authorities have divided this very numerous family into three genera:—*Pelargonium*, characterized by having usually seven stamens, and unequal-sized petals; *Geranium*, having ten stamens, and equal-sized petals; and *Erodium*, having five stamens.

RHUBARB (*Ibid.*).—This refuses to grow, you say, in a certain garden abounding with wireworms. Do they attack the roots and destroy the plants, or do these merely continue small?

GARDEN OVERFLOWED BY THE SEA (*Ibid.*).—The overflowing occurred "a few years back," yet since, the garden, a stiff clay, will scarcely grow anything.—All that the owner can do is to dig in annually heavy dressings of fine chalk, coal ashes, and river sand, throwing up all new plants into ridges during the winter, and not planting in it. By this treatment he will have the excess of salt washed out from the soil by the rains. Adding sea sand, and without drainage, will tend to keep his soil too saline and barren. We know a garden near Ipswich that suffered similarly; it remained covered with seawater for 24 hours. The asparagus, and many of the most valuable other things, such as the cherry-trees, were killed. The soil gradually recovered its former fertility.

RASPBERRIES (*Ibid.*).—These being moved in the spring is the cause of their want of productiveness. Do not reject them on this account. Much over their roots, and water them during very dry weather. Planting two roots together would have been bad gardening. The fault was in not moving in the autumn. They will do better next year if you give them a good coat of manure, but without disturbing their roots in the spring. Of *Calanthe* there are seventeen species, therefore we cannot tell the names of two of which you give no other description than that they are smaller than *C. discolor*.

PORTULACA SPLENDENS (*Ibid.*).—You consider this hardy because you sowed it in an east border, near Faversham, during April, and the seedlings are doing better than other plants raised in a greenhouse and transplanted. This is no proof of its being hardy, for this term is applied to plants that will endure our winters. Any tropical plant would have lived this summer in our borders.

ENOS.—At p. 192, col. 1, line 5 from bottom, strike out the words "piece of."

BEES (*A Young Apianian*).—You fear a third swarm issuing from your hive, because, when other bees are working, its tenants are quiet, and the hive is lighter than it was a month ago. Never mind these appearances; we think your stock is doing well, and that it will soon recruit so as to be able to stand the winter. Much of the loss we must ascribe from the swarms it had sent off.

REMOVING GLADIOLI (*A Young Apianian*).—The best time to remove gladioli is October. When the soil suits them they flower every year, and may be left undisturbed for many years. *G. ramosus* is as hardy as the others, and will freely cross with *G. cardinalis*. Save some pollen from *G. grandæus*, to cross *G. psittacinus* with, when it flowers.

LYCUNIS FULGENS (*E. H. T.*).—This is propagated by cuttings as early in the autumn as young shoots can be obtained after the flower stalks are cut down. The cuttings will root in light soil under a hand-glass; but, to obtain a large stock of it, a few plants are cut down just before the flower buds appear in June, and the shoots cut into three-joint lengths, two of which are to be inserted, leaving one bud above the surface. If a hand-glass is placed over them in a shady border, they will root in six weeks, and may be transplanted at the end of August where they are intended to flower.

LIQUID MANURE FOR MEADOW (*S. T.*).—If you wish to improve the pasturage, apply it now; if you wish to increase the bulk of hay, apply it in the spring. Add water to it, as we recommended for your garden at p. 192.

GRAPES NOT SETTING (*A Cheshire Rector*).—If the vine, which has merely set and ripened one bloom well (lunch, we presume), showed more bunches which did not set, the result might be attributable to unsuitable temperature, to the want of ripeness in the wood last autumn, or to the want of a sufficient protection to the

roots, in addition to the stem being bound up, as you say it was, before forcing. This protection would be more particularly required in early forcing in such a spring as the last, abounding as it did in cold and heavy rains. If your vines were then in flower, the inequality to circumstances between the root and top would produce such a result. In alluding to a likely cause, we thus point out a remedy. The fact of your vine throwing out so many shoots, and many of them now showing fruit, is evidence that the plant is both luxuriant and productive. If you did not mean to force before January or February, these bunches, if good, might be allowed to become matured for early winter use. The other rambling wood must be thinned out by little at a time, so as to give no great and sudden check, ever keeping in mind that roots and branches act relatively and correlatively to each other. You must make up your mind how you intend pruning—whether by long rod, short rod, or spurting close—and then, what inter-est shoots interfere with the due exposure to sun of those leaves on the wood which you intend for producing next season, must be gradually removed. Then you will not only have strength in your vine, but that strength will be concentrated into certain parts for effecting a definite object. General statements on the whole subject will shortly appear.

BEES (Peter).—Your placing a bell-glass upon your stock after it had swarmed was useless; you must never expect to have both honey and swarms from the same stock in the same season. A piece of guide-comb should *always* be put in the glass, as directed in p. 42 of the present work. Should weak stocks swarm, hive them in the usual manner, and when the second swarms come, unite them to the first ones, as directed in p. 104. You must wait until another year, we fear, for honey, and then, by following the directions already given in *THE COTTAGE GARDENER*, you will, we doubt not, have a plentiful supply, unless you put already but already put already put your swarms, as directed also in p. 104. We have three swarms, all of which are working up into glasses; one has already stored in the glass 10 lbs., another 14 lbs., and a third 6 lbs.; the latter we have been obliged to supply this morning (July 12) with more room, by placing a glass described at p. 166) between the one now nearly filled and the stock, for the bees showed it to be necessary by clustering at the mouth of the hive beyond the usual time. By no means fumigate at this time; if you must have honey, and from your own bees, fumigate your weak stocks in the autumn, take their honey and unite the bees to your stronger stocks, directions for doing which will be given in a future calendar.

NAMES OF PLANTS (T. T. L.).—We think your specimen is *Antirrhinum minor*, but the specimens were too dry for us to be certain. Where did you find it? Our correspondents would save us much trouble if they would give all our plants a name about the plant of which they wish to know the name. (*A Young Beginner, C. L.*)—The single leaf and the very dry flower you sent is not sufficient for us to judge of your tropical plant from. The parts sent agree nearest with the characters of *Ipomoea acrochaeta*. Send us another specimen, and the plant will be at once known, or a twin, or a twin, or what is it? (*A very Cockney*).—The plant, of which you saw "a cart-load in the London streets," is black henbane, *Hyoscyamus niger*. (*A Cheshire Rector*).—The plant of which you sent us a leaf, describing the flower, is *Melia azadirachta*, or lead-tree. It is scarcely sufficiently ornamental to deserve the space it occupies in a small greenhouse. The name of lead-tree is given because its nuts are used by Roman Catholics in making their rosaries. (*J. B.*)—Your plant is *Celastrus opertoides*, a greenhouse, somewhat shrubby plant, and nearly always in flower. It is a really good bedding-out plant, for its blue flowers are also quick and have a good health.

MARIE LOUISE PEAR (J. B. R.).—You are noways singular in your Marie Louise blooming freely but fruitlessly; the fact is it is a very shy setting pear as a standard, and capricious even on the walls. Your climate (Lancaster) is too cold for it; we would advise you to cover it with a coarse canvas in the spring, only taking care to remove it daily. You had better commence grafting or budding other and safer kinds on its branches. Your soil, a good loam, with a porous gravelly subsoil, appears unexceptionable. We have a case similar to yours, a tree nearly 30 feet high; we have not gathered a can of pears in seven years, yet those on our walls, covered with canvas, bear abundantly.

PEACH SHOOTS (Rev. P. W.).—If your peach shoots, having fruit at the foot, are growing very strong, and have produced as much as one foot in length, you may shorten their tops by pinching in the next week in August. If you cut your two-year-old new ones, or possible; try and lay in as much of the annual shoots as are requisite without. All really surplus ones must be removed, or cut back to a couple of leaves.

PLUMBAGO (Rev. P. W.).—A high shelf in a greenhouse, with such weather as we experienced from the end of May to the middle of July, is, perhaps, the very worst situation for any small plant, and particularly for this plumbago. A cold pit, and slightly shaded in the middle of the day, with abundance of air, would have made a different thing of this. The light powdery appearance of the leaves is peculiar to the genus, and is rather a sign of good health.

ROSA MULTIFLORA (Ibid.).—This is too general a name, as there are many of that section; a conservatory is too hot and close for all of them. However, the best plan would be to bud a collection of tea-scented roses on this, and to have it well covered as it is; also the Cloth of Gold and Solitaire, two which are known to do better in a cold conservatory than anywhere else.

FUCHSIA SERRATIFOLIA (Ibid.).—The roots of this, planted in the border near the flue, got too dry, or were pinched with liquid manure. The leaves of all fuchsias are more or less of the wood ripens, but the top of the young shoots are only killed in ordinary cases by a derangement at the roots. One plant of the same fuchsia in a pot, you say is losing some leaves and the others are curling. If the pot is quite full of roots an hour's sun striking on it would have caused the leaves to curl, at any rate they exhausted the nourishment or sap faster than the roots supplied it, a damp, cool, shady place, in or out

of doors, will soon recover it, but some of the curled leaves will fall off, and others, probably, will keep the curled form. This fuchsia generally flowers late in the autumn and through the winter.

COTTON'S HIVES (H. F. B.).—There appears to be a very little doubt but that your bees have flown away this year, *certainly*, and, unless they have afforded you a good supply of honey, for the preceding three years also. There is no necessity for bees to swarm, if sufficient and *timely* room be given them, but then there is always a large accumulation of honey. We admire both Mr. Cotton and his book; they are exceedingly amusing, but not practical. He tells Mr. Payne that his bees are doing admirably in New Zealand; he would not write such a book now, after the experience he has had. Next year, if you buy a swarm of your neighbours next year, and be contented with honey only from Cotton's hive. Put the swarm into one of Mr. Payne's hives, or into Taylor's.

ROSES (Pegasus).—The roses not flowering, with leaves "not green," were taken from a hot forcing pit or some close place, and the sudden change to an open S. aspect proved too much for them; put them in the shade for a month, and syringe them over the stems every evening.

FUCHSIA (Ibid.).—These not flowering, or having small flowers, require more room at the roots, or more water, or else their roots are bad. If the former, shift them; otherwise patience and long night-dews will bring them round. The soil is likely to be at fault.

FUCHSIA (H. F. B.).—These not flowering, and having the points of the shoots, which have not flowered this season, cut back a little now; not much, however, as, if we get a wet autumn, all the lower buds would start, and not ripen the young growth. *R. Deconensis*, and the late tea-scented roses, will stand our frost, with a slight covering, if the borders are dry and sheltered.

FUCHSIA (Ibid.).—These should not be cut down after flowering until the growing season is over, as they would begin to grow immediately.

SALVIA PATENS (Another Notice).—This will flower the first year from seeds, if sown early, and well-treated till the end of May.

SEEDLING FUCHSIA (Ibid.).—These, if very small, should not be cut down the first winter, nor till they begin to grow in the spring.

IPOMEEA (Ibid.).—*Ipomoea laevis*, Horsfalli, and Nil, will not do in a greenhouse like yours; *Mandevilla suaveolens*, &c. will, and you will find how by looking at the index.

CLIMBERS FOR S. E. WALL (Ibid.).—*Clinanthus punicus*, *Tweedia cerulea*, and *Erythrina*, will do very well on a south-east wall, well sheltered, if you keep the frost from them in winter; of all you name, the *Clinanthus* is the best for pots, and also the best greenest climber, as we have said long since. *Liananthus* are poor weedy annuals, which grow as freely as mignonette, if sown in the autumn or spring.

SOWING FLOWER SEEDS (A Subscriber).—You ask when you may sow *Lupinus*, *Trifolium*, *Collinsia bicolor*, *Chenopodium*, *Bartonia*, &c. The China aster seeds I am in the open ground about the beginning of May; the others any time in April, to flower in June, July, and August; and the collinsia will do to sow about the end of August, to flower next April and May.

NAME OF PLANT (An Amateur Gardener).—We cannot make out whether your name is meant for *Leptochloa* or *Lasiopetalum*. The former a dwarf, hardly annual, to be sown in the spring; the other a greenhouse shrub, from New Holland, of no great beauty. *Lupinus polypholus* is a fine, hardy, perennial plant, of great beauty in its seedling and seedlings of it next September, when they should tend them to flower next summer; in good soil the flower spikes will reach from three to four feet high.

DOUBLE YELLOW ROSE (Salford Priors).—The freaks of the old double yellow rose have already baffled all inquirers; perhaps double working might do something; that is, first to bud the single yellow Austrian on a dog rose, close to the ground, and in the following year to put a bud of the double yellow rose into the Austrian. We should like to hear of this experiment tried in every parish, or where the old yellow rose refuses to flourish.

SCILLA ARTSII (H. F. B.).—In the spring sow it thinly in the open ground, where it will flower in the autumn; and about the end of August, in pots, to be treated like mignonette, will flower next April and May: too rich soil and too much water causes the damp, just at the surface of the ground.

SCILLA ARTSII (H. F. B.).—These beginning to bloom in June, you nip off the tops with their flowers; and you have done perfectly right, to get them into flower for the September show. If the pots are very full of roots, give them one more shift now, otherwise water them freely and sprinkle it over their leaves in the autumn, three times a week, and they cannot fail to be in fine bloom; or, if they show flowers too soon for the show, remove them to a north aspect, and keep the air cool around them by pouring water on the ground in the evenings of hot days.

PRIMAVERIA SAXIFRAGE (W. Smythe).—Your plant is the old primula saxifraga from Herts, and should be kept in a window or cold pit in winter; it only flowers once, and is increased by offsets and seeds. Good strong offsets taken off in the spring, grown well through the summer, will, or should, flower the following season, if potted in light rich soil and well drained. The seeds may be sown in August or March, and will either flower the second year, or at the end of the third season. Give some of it to your friends. It is one of the good old plants that ought to be more grown. It has been grown with a flower-stem upwards of a yard high, and a perfect pyramid from the pot upwards.

IRIS XIPHOIDES (W. T.).—The piece of a flower sent is part of the bloom of iris xiphoides, a bulbous hardy perennial. The price for named separate kinds is 3s. per dozen; for mixed kinds, 9d. per dozen. The named sorts are most beautiful.

GIANT STOCKS (Ibid.).—Your removing the fine plants you possess now, and putting them in a place to protect them through the

winter, replanting out in the border in spring, will prevent their flowering, provided they are kept dry through winter.

PLANTS FOR SHADED ROCKWORK (*W. H. Lillington*).—Ferns and periwinkle, the *Vincæ herbæ*, with a plant of Irish ivy, are the likeliest plants to grow under your pear-tree, especially if the branches of the tree be thinned out freely, and the plants watered frequently in dry weather. You may obtain the ferns at a reasonable rate from Mr. Appleby. His address is on the title-page.

GLADIOLI (*Ibid.*).—You say you have treated them as directed by Mr. Beaton, but they do not show signs of flowering, yet are growing strong both in stock and tent. They may flower yet, especially if they are *G. furibundus*, or *G. patulicus*. Should they not flower, you may comfort yourself that they will make large strong bulbs, that will be sure to flower extra well next year.

CLIMBING ROSES (*Rev. H. L. Jenner*).—The climbing roses you planted last May you have watered freely, both with liquid manure and clear water. The soil in which they are planted is very light and porous. Notwithstanding your care, the roses do not make shoots. In such a soil, and in such a hot season as we have had, it is fortunate that they are alive. Stir the soil round the shrubs, and mulch with short littery dung, and continue the watering. They will push forth shoots yet.

WIRE-WORMS (*Ibid.*).—These have destroyed your early horn carrots, the remainder will do no good; pull them up, fork over the ground, and search minutely for all the wire-worms and destroy them. If, as we suspect, your garden is an old one, it is unfit for carrots. Spirit of tar has been used in your garden, and the wire-worms; you might try it next year on one piece of ground, at the rate of a quart of a pint to every square yard; or trench the ground as deep as possible, turning the top spit, every morsel of it, to the bottom of the trench. Do this about a month before you sow the carrots; this buries the insects, and saves their attack. We once succeeded in getting a good crop of carrots by covering the space intended for them with a coating of fowls' dung in autumn, allowing the winter rains to wash in its soluble constituents. In the spring all that remained was raked off, the ground forked over, and the seed sown. The carrots came up freely, were as free from rot, and in autumn were taken up, and proved quite clean and fine. You can try this way also.

BIND-WEED (*Ibid.*).—You have in your garden that bad weed, the *Convolvulus arvensis*, or, as it is commonly called, the bind-weed. We can only comfort you by telling you it is next to the coltsfoot, the most difficult of all weeds to eradicate. It is ten times worse than the *Tridenn repens*, or quick-grass, you mention. There is no way of thoroughly extirpating it but by trenching the ground in every part, and carefully picking out every morsel of its roots, and this should be repeated till the ground is cleared of them. You may keep it down by frequently hoeing the surface, but the roots will not die, but spring up again on the least neglect in any corner. We say, then, trench and pick them out most perseveringly. You will have this consolation, that the soil in your garden will be greatly benefited by the operation.

CALENDAR FOR AUGUST.

GREENHOUSE.

ALOE, propagate by slips, suckers, &c. **BEDDING**, finish, b. Dress every plant as occasion offers. **EARTH**, give to Oranges, &c.; stir the surface frequently. **ORANGES**, **LEMONS**, &c., bud, b. **PEAR-MOULD** plants, especially hearties, keep steadily supplied with water. **POTTED PLANTS**, except the more tender, and unless the season is unusually ungenial, continue outside the house until the end of the month. **SEEDLINGS**, transplant singly. **SHIFTING** into larger pots, finish, but few plants require potting after this time, except seedlings. **SUCCESSFUL PLANTS**, as Aloes, &c., propagate by slips, &c. **b. WATER** in dry weather, but as the growing season declines much less will suffice. **Pelargoniums** headed down early in the last month will now be ready for repotting. **Climbers**: train and trim neatly those which run along the rafters, otherwise they will obstruct the light to the plants below. **Thunbergia may be sown, seeds gather as they ripen, and label them. **D. BEATON.****

FLOWER GARDEN.

ANEMONES, sow. **ANEMONES**, stick in water; clear from decayed leaves, &c. **ARICULAS**, shift into fresh earth; water; keep in the shade; seedlings pick out; sow. **BEDS**, in which bulbous flowers have grown, fill with annuals from pots, to flower through autumn. **BIENNIAL** seedlings, transplant. **BULBOUS**-rooted flower-seeds, to obtain varieties, sow. **BURNING** roots, remove or transplant. **Remove** and plant off. (**Autumn** flowering), plant. **CARNATION** layers cut from old root and plant; water frequently; layering may still be done, b. **c.** card the flowers and shade from sun. **DANIELAS**, stake; thin the flowers. **DAISIES** propagate; put in cuttings of new kinds; keep them in the cutting pots through winter. **DOUBLE** blossoms, perennials with fibrous roots, propagate by division, **c.** **DWARF** borders as required. **EDENGS** of box, &c., clip in wet weather. **EVERGREENS** may be moved, **c.** if wet weather; plant cuttings. **GRASS**, mow and roll weekly. **GRASS SEEDS** may be sown, **c.** **GRAVEL**, weed and water. **HENEGES**, clip in moist weather, except laurel and holly hedges. **HELIOPTEROS**, put in cuttings under glass in a gentle heat, b. **MIGNONETTE** sow in frame. **PERLARGONIUMS** propagate by cuttings, b. **PERENNIALS**, in pots and elsewhere, will require water almost daily; break down flower-stalks as they finish blooming; annuals, pinches and water. **Pinks** may be planted out. **POLYANTHUSES**, sow. **PONDS** keep clear of green scum. **POTTED ANNUALS** will require water daily in dry weather. **RANUNCULUSES**, sow; plant in pots to bloom in November. **ROSES**, finish budding; prune in strong straggling shoots; cuttings

of China and Tea-scented varieties plant under hand-glasses. **SEEDS**, gather as they ripen. Even those of *Heliotropes* and *Verbenas* will frequently be found to be fertile. **STAGBERRY**, cut off the bunches of seeds of *Laburnums*; the seeds are poisonous; also cut off the seeds of *Lilas*. **SWEET**, to obtain varieties, had better be done in boxes. **TEN-WEED** stock, sow, b. **TULIPS**, and other bulbous-rooted flower-seeds, sow. **TWIG** may be laid, **c.** **VERBENAS**, put in cuttings of new kinds, **c.** **WATERING** will be required generally in dry weather. **WEEDING**, generally attend to. **Cuttings** of *Penstemons*, *Snagdragons*, double *Lychnis*, and other herbaceous plants, will yet succeed, if planted and shaded under hand-glasses. **Of the China Aster**, mark the finest, and save for seed. **Mr. Appleby.**

ORCHARD.

BEDDING, finish and remove branches from that done three weeks since. **Remove** waste shoots from stocks, especially below the bud. **BLIGHT** (American), apply the brush once more. **APHIDES**: still try to extirpate them in Peaches, Plums, &c. **RED SPIDER**: if this appears, dust flowers of sulphur on the back of the leaves. **Coccus**, or scaly insect; if this appears, syringe repeatedly with soap-suds. **FIES**, continue to disbud, and commence stopping rambling shoots. **VINES**, follow up stopping of laterals, and keep them thin. **AFRICOTS**, stop gross leaders, and keep down breast shoots by pinching. **PEACHES** and **NECTARINES**, stop all gross shoots, and keep under the great wood by the same process, and cut off the shoots altogether. **PEARS**, dub all foreign spray, cutting one half away; first selecting and tying down all short-jointed and brown-looking wood. **PROTECT** fruit with nets, **c.** **WASPS**, destroy nests. **Late Strawberry**, water well. **ALPINES**, reduce runners from, and place slates or tiles beneath. **STRAWBERRIES**, make plantations of early and strong runners. **RASPBERRIES** (double-bearing), remove all barren shoots from, and carefully train those in blossom. **TOMATOES**, thin, stop, and train. Commence and complete, as soon as possible, all **NAILING** and **TRAINING**, whether on walls, pales, or espalier trellises. **R. EBBERTON.**

PLANT STOVE, AND FORCING DEPARTMENT.

As the temperature will permit, admit **AIR** day and night. Allow the **TEMPERATURE** to range, with sun heat, from 65° to 85°; and during night from 55° to 65°. **Strike**, or pot off if already struck, **SUCCULENT** and **SOFT-WOODED** plants, that they may be established before winter. Do not give the **URGENT** stop any more to the young shoots of plants intended to bloom in winter and spring, but harden them by exposure to air and light. Examine, shift sparingly, and re-arrange **ORCHIDS**; placing in separate groups those in flower, those that have finished their growth, and those still growing—giving shade and air to the first, air and more light to the second, and more care and heat to the third. **Train** plants on trellises, and growing up rafters; bestow upon them enough of art to convey the idea of dressed elegance, and not so much as would conjure up impressions of the stiff and the formal. Give the last shifting, early in the month, to those **PIVETS** intended for early cutting next season. Let others stand in succession in the early ripe **GRAVES** from all diseased and mouldy berries; admit abundance of air. Keep down, or rather keep away, the **RED SPIDER**, by lighting a fire in dull days, and brushing the pipes or flues with a thin mixture of sulphur and water. Thin freely the late crops; and water the **VINES** in dry weather. Give to **PEACH**-TOWERS, from which the fruit has been gathered, copious syringing; and keep the houses rather close, to raise their temperature by sun heat, that the wood may be hardened and ripened before ultimate exposure by removing the sashes. Stop and thin shoots in late houses. Regulate the shoots, and set the fruit on **MELON** plants. **Strike** cuttings, or sow seeds, of **CUCUMBERS** intended for a late supply. Encourage the growth of all **PLANTS** in **POTS** intended for forcing, and place those fully matured by the back of a north wall. Lay **STRAWBERRIES** in small pots, to be shifted into larger. Turn **BARB BENS**. **PAINT**; wash; clear out lawns; empty and rinse out boilers; and have every thing in readiness for a cold winter campaign. **R. FISCH.**

KITCHEN-GARDEN.

ALEXANDERS, sow. **ANGELICA**, sow. **AROMATIC** Herbs may still be planted; gather for drying and distilling. **ARTICHOKES** break down, &c. **ASPARAGUS**-BEDS, weed. **BALM**, plant; gather for drying. **BEANS**, plant, b. **BORAGE**, sow. **BORECOLE**, plant. **BROCOLI**, plant, b. **CABBAGES**, plant out; sow, b. **CARDUONS**, earth up. **CARROTS**, sow, b. **CAPITULIFEROUS**, plant; sow, **c.** **CHEESE**, earth up. **CLEVER**, sow. **CUCUMBERS**, plant out; sow, **c.** **COLEWORTS**, sow for, b.; plant. **CORN SALAD**, sow. **CRESS** (American), sow. **CUCUMBERS**, plant or sow, b. **DILL** is fit for gathering. **EARTHING-UP**, attend to. **ENDIVE**, plant, sow, b.; blanch, &c., advancing crops. **FENNEL**, sow and plant. **FROSTCHIT**, plant, take up. **GARLIC**, plant, b. **GARDEN**, attend to. **KIDNEY BEANS**, sow, b. **LEeks**, plant, b. **LETTUCES**, sow, for standing through the winter; plant out. **MELONS**, attend to. **MINT**, gather for drying. **MISERUN**-BEDS, make; attend to. **NASTURTIUM** **BERRIES**, gather. **ONIONS**, sow, b. and **c.**; lay down pots. **PARSLEY**, sow, b. **PEAS**, sow, b. **POTATOES**, take up as they begin to decay; store them in a shed, between layers of dry earth. **RADISHES**, sow; gather pods for pickling. **RAPÉ** (chillie rooted), sow. **ROCMANROLE**, take up. **SAVOYS**, plant, b. **SEEDS**, gather as ripe. **SHALLOTS**, take up. **SMALL SALADING**, sow. **SPINACH**, sow the better sorts in rows close. **TURNIP**, sow, b. **Turnip** of one kind, sow, b.; thin, &c. **TURNIP-CABBAGE**, plant. **WEEDING** and **WATERING**, attend to. **WORMWOOD**, plant, b.

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WEEKLY CALENDAR.

M D	W D	AUGUST 2—8, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
2	Th.	Large Eggar moth seen.	Tiger Lily.	27 a. 4	45 a. 7	2 44	14	5 57	214
3	F.	Botanical Society's Meeting.	Hollyhock.	28	44	3 41	15	5 52	215
4	S.	Mugwort flowers.	Blue-bells.	30	42	rises	☉	5 47	216
5	SUN.	9 SUN. APT. TRIN. Mushrooms abound.	Egyptian Water-lily.	31	40	8 a 18	17	5 42	217
6	M.	P.R. ALE. B. 1844. Transfiguration.	Meadow Saffron.	33	38	8 45	18	5 35	218
7	Tu.	Name of Jesus. Hort. Society's Meeting.	Common Ananeth.	35	37	9 9	19	5 28	219
8	W.	Swift last seen.	Love-lies-bleeding.	36	35	9 34	20	5 21	220

TRANSFIGURATION.—This festival of the Roman Catholic church, commemorating our Lord's glorious appearance on Mount Tabor (Matt. xvii.), was instituted by Pope Calixtus in the year 1456, on the occasion of the deliverance of Belgrade from the Turks. It is customary in France on this day to place fresh grapes on the altar, for the priest to bless the vintage of the year.

NAME OF JESUS.—This anniversary, celebrated by the same church, in honour of the name of Him to whom "every knee shall bow," is said to have been instituted with a design to awaken the sensibility of converts, and to promote the habit of reverence for His name.

PHENOMENA OF THE SEASON.—In rural districts, as observed above in the calendar, the *swift* is last seen, on an average of years, about the eighth of this month. In towns, or other places where large buildings or lofty towers afford these birds the kind of shelter

in which they so especially delight, they linger for about three weeks longer. This largest of the swallow tribe is really a tropical bird, and this appears to be the reason why it can only endure to be with us during the hottest period of our year. It arrives about the middle of May, and often leaves at the end of July, though its stay, as already observed, is frequently prolonged to the close of the present month. Its black plumage and shrieking cry associate it with ill-omens in the minds of the superstitious, whence arose its name of the *devil*, and the *black martin*. The extreme lightness of its body, and the great expanse of its wings—for the first weighs but one ounce, and the latter measures eighteen inches across—render it the most untiring in its flight of any bird visiting our climate. There are much fewer swifths than usual this year in the neighbourhood where this is written (Winchester), and old people have thence inferred the early arrival of cold weather, but it is difficult to discern how the two events can be connected.

AUGUST	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
2 Highest & lowest temp.	Showery. 70°—56°	Fine. 79°—55°	Fine. 63°—52°	Fine. 72°—49°	Rain. 64°—46°	Stormy. 81°—56°	Fine. 89°—46°	Cloudy. 67°—54°
3	Showery. 73°—57°	Fine. 83°—52°	Stormy. 62°—54°	Showery. 69°—52°	Showery. 66°—54°	Showery. 77°—51°	Fine. 77°—38°	Rain. 66°—43°
4	Fine. 69°—57°	Fine. 86°—62°	Stormy. 68°—46°	Stormy. 72°—44°	Fine. 71°—55°	Fine. 79°—56°	Fine. 80°—51°	Fine. 73°—48°
5	Fine. 64°—57°	Cloudy. 79°—59°	Fine. 72°—53°	Showery. 72°—52°	Showery. 75°—55°	Stormy. 80°—62°	Showery. 73°—54°	Rain. 71°—50°
6	Showery. 67°—57°	Showery. 74°—53°	Fine. 70°—52°	Cloudy. 72°—52°	Fine. 72°—52°	Fine. 83°—64°	Cloudy. 69°—47°	Showery. 72°—46°
7	Fine. 74°—58°	Fine. 78°—48°	Fine. 76°—58°	Showery. 71°—56°	Stormy. 69°—47°	Cloudy. 83°—69°	Fine. 76°—49°	Fine. 73°—46°
8	Showery. 67°—52°	Fine. 82°—51°	Fine. 86°—58°	Fine. 72°—47°	Cloudy. 71°—55°	Cloudy. 74°—55°	Stormy. 76°—49°	Rain. 68°—45°

INSECTS.—From the end of June to the commencement of August, according to the temperature of the season, may be found clinging to trees, especially the lime, that beautiful insect the Wood Leopard moth (*Zenura asiatica* of some, and *Bombora* or *Cossus asiatica* of others). Its specific name, from *cossus*, a horse chesnut, is singularly inapplicable, as it frequents that tree less than any other. It is white, covered with bluish-black spots, as represented in our drawing; the antennae short, very feebly at the lower half, tapering to a fine point. The female is full twice as large as the male, often measuring nearly three inches across the expanded fore-wings. She is furnished with a long ovipositor, or egg depositor, admirably adapted for inserting her eggs in the cracks of the bark of trees, on the wood of which the caterpillar feeds. To the pear, apple, hazel, walnut, elm, lime, and other trees, it is most destructive, burrowing holes into them, destroying their sap vessels, and forming reservoirs for wet to lodge in and promote decay. The caterpillar is white, tinged with yellow, and spotted with black; its head being horny, with black patches upon it, and on the segment of the body next to it. Its length is about two inches when full grown, being hatched in August, and attaining its full size in the June following. It then enters the pupa state, becoming a brownish yellow chrysalis, in a cocoon formed of the dust of the wood which, as a caterpillar, it gnawed down in working its passage. From this cocoon, as already stated, the moth comes forth, either at the end of June or some time between that and the beginning of August.



Or the London Horticultural Society—that instance of the associations which should not only encourage the practitioner of the art by the judicious suggestions of their prizes, but should teach by their publications, and demonstrate what is good cultivation in their gardens—we have already spoken. We have also urged upon the attention of our readers that most important class of horticultural societies having for their prime object the encouragement of a taste for gardening and the improvement of its practice among the cottagers of the United Kingdom; and for these we held up, as a model, the Society of Pytchley. A third class of horticultural societies, scarcely less important, and certainly tending to the improvement of British gardening, yet remains to be noticed; and we will take, as our exemplar, "The Stamford Hill Horticultural Society."

This Society was instituted in 1833, and, judging from its exhibition, which we attended on the 18th of the July just past, there is no reason to say that, as it then was held in the grounds of Josiah Wilson, Esq., of Stonard House, so in 1933 its centenary shall not be celebrated in the same grounds, under the auspices of one of his descendants. It has the elements of longevity about it, and it is for the purpose of noting some of these that we deviate from our prescribed course, and dwell upon the transactions of a local Society. We are obliged to refrain from noticing these generally, for we have no right to prefer a few before the others, and it is impossible for us to notice the whole of the three hundred or thereabout, which do service to horticulture in every section of the British Isles.

The Rules of the Stamford Hill Society are so

concise that we now publish them entire; for, concise as they are, yet they embody all that are desirable for regulating such institutions.

1. All objects intended for competition must be at the place of exhibition before eleven o'clock.
2. Every exhibitor should send with his plants a list, showing in which number on the list of prizes they are to be classed for competition, and also cards properly filled up according to the designation given in the printed list. All plants should be neatly and distinctly labelled with the correct names; and the name of each plant exhibited in the Collections of Heaths, Azaleas, and Greenhouse Plants, should also be stated upon the list accompanying the plants.

N.B. Exhibitors can obtain forms for lists and cards from the Treasurer or Secretary.

3. No plant is to be exhibited that has been less than three months in the possession of the exhibitor, unless raised from seed by such exhibitor, which fact must be stated on the list he furnishes.

N.B. Any infringement of this Rule will disqualify a Member.

4. No flower to be exhibited as a Seedling which has not been raised from seed by the exhibitor, and such seedling must never have been shown before at this Society.
5. Plants which are classed for a distinct Prize are excluded from Stove or Greenhouse Collections, excepting azaleas and heaths.
6. Vegetables must be divested of outside leaves and unnecessary stalks, and weight will be considered only when combined with quality.
7. No exhibitor can receive two Prizes in one Class.
8. No plant can be entitled to a Prize, either singly or in collection, that is not in bloom, nor can the same plant receive two Prizes in one season.
9. The Judges may recommend to the Council any object which they may deem worthy of a Prize, whether named in the list or not.
10. In the event of the Judges not deeming any article exhibited worthy of a first Prize, they may award a second or third, or reject it altogether; and, upon their recommendation, the Committee may give additional Prizes in each class according to the number of exhibitors.
11. Any person questioning the decision of the Judges shall not be permitted to exhibit in future.
12. The Society's vans will fetch and return the plants, &c., of any exhibitor within the limits of the place of exhibition, provided three days' previous notice of the amount of van room required be sent to the Secretary; and those plants which are conveyed to the grounds first in the morning will be first returned in the evening.

These rules speak for themselves, and being adhered to scrupulously, and without any favouritism, admit of no murmuring. The 12th rule is applicable only to a neighbourhood like Stamford Hill, where the population is large, and the exhibitors numerous, within a short distance of the show ground.

The classification of prizes adopted by this society, we recommend emphatically for adoption by other societies. There are prizes for orchidaceous and miscellaneous collections of hardy, greenhouse, and stove plants, but the predominant feature of the society's list of rewards is giving distinct prizes for collections of one kind of plant. Thus geraniums, calceolarias, cinerarias, cacti, azaleas, heaths, verbenas, roses, auriculas, pansies, achimenes, gloxinias, fuchsias, annuals in pots, hardy perennials, balsams, pinks, ranunculuses, iris blooms, liliun lancifolium, cocks-combs, carnations, picotees, dahlias, China asters, and French marigolds, have all separate prizes. The consequence of this is obviously an increase of the number of exhibitors, for there are hundreds of amateurs who have only the requisite convenience for cultivating one kind of flower, who excel in its cultivation, and who would gladly enter the lists if, as at Stamford Hill, they had a fitting opportunity and encouragement. That such is the result, was demonstrated at the meeting on the 18th of July, for we never before saw such a rich gathering of admirably

grown achimenes and gloxinias as were then displayed. The first and second prizes for these were gained by Joseph Oldham, Esq., of Stamford Hill, and R. Dawson, Esq., of Tottenham; and, for the information of our readers, we will enumerate the flowers in their collections. Of *achimenes*, there were patens, grandiflora, longiflora, coccinea superba, picta, venusta, Lipmanii, and pedunculata. Of *gloxinias*, maxima, cartonii, Priestleyana, cerina, albo-sanguinea, and Menziana.

Another good feature of this society's prizes is, that they are offered for *small* collections, in no class more than *six* specimens being admissible, except in the miscellaneous collections, and even in these the plants are restricted to *twelve*. This, also, tends to increase the number of competitors, one of the great objects for all such societies to aim at; and the absolute declaration of the number, neither more nor less, which must be exhibited, is another point worthy of all imitation. Some societies are indefinite upon this point, wording their prize terms thus, "in collections of *not less* than twelve," the consequence of which is, that though it is generally understood that twelve is the number to be exhibited, yet some large grower occasionally wishes to exhibit a much larger number, and disputes are the unsatisfactory consequence.

The prizes of the Stamford Hill Society are not large—varying between twenty and five shillings; yet that these are quite sufficiently liberal is evinced by the richness of its exhibitions, and the consequent brilliance of the attendance. On the day in question there were about 1500 tickets of admission issued—each member being entitled to three: more than 1200 of these were delivered at the entrance; and, as some were for the admission of more than one person, we are not far wrong if we guess that there were 1500 visitors. The grounds in which the meeting was held added to the attraction. The extensive view from them is unsurpassed by any so closely in the vicinity of London; the conservatory, on which we shall have more to say in a future Number, is most tasteful; and the fernery, under the good management of Mr. Wilson's eldest son, is a model which deserves imitation.

We do not remember in any year to have heard so many complaints of the failures of plants as in the present. Pansies have died off in dozens, newly-planted trees have failed, and young greenhouse plants, generally, have suffered. Very much of this destruction has arisen from a neglect of timely supply of water during the excessive drought of July; but some of the ruin seems to have been unavoidable, for a master of horticulture writes thus to us:—

"It may be some consolation to amateurs to know that the best gardeners have suffered much this sea-

son : many of their young plants were injured, if not killed, with the wet and chilly nights up to midsummer, and then by a sudden drought, which parched up the leaves, notwithstanding all the care that could be given them."

THE FRUIT-GARDEN.

THE PEACH.—The period has arrived when a very general stopping of the shoots of peaches and nectarines should take place. We do not mean to say that this is the most general practice, for many good gardeners do not stop at all, or but very little. We, however, have practised thus for years, and we are perfectly satisfied that it is a most essential point of culture, having a direct tendency to moderate that extreme vigour of root, which at this period of the year, through the influence of a high ground temperature, is apt to produce late growths; especially if the soil is rich, and the roots are at a considerable depth.

Another object is accomplished by stopping; rapid growth is inimical to both size and flavour in the fruit, both which qualities are enhanced by what we may term a concentration of the elaborated juices, which at this period should be in full power. Those juices should not be suffered to expend themselves in the production of an excess of immature leaves, which can never fully repay back the stores used in their production. A third reason exists for this procedure: it affords one more chance, before the growing season is finally completed, of making further advances towards an equalization of the sap; a matter of the utmost importance in the case of all trained trees, more especially the peach and nectarine, which are but too apt to run riot in some branches at the expense of the others. Our rules of stopping at this period are as follows:—We commence as soon as we perceive the last swelling of the fruit beginning; and this will, in most parts of England, be about the first week in August. We do not complete all the stopping at once, but, generally, go over the trees three times. In the first stopping, we commence at the extremities, pinching off the mere growing point of every shoot that may be considered a leading one, or inclined to be rather rampant. Not a shoot do we touch on all the subordinate parts of the tree which have acquired, or are likely soon to acquire, the character of leaders; such breast-wood, or, rather, back shoots, as obstruct the light from those ahead of them, by overtaking and overlapping them, we stop without hesitation. Amongst the latter will be found many shoots not far from the collar of the tree, which we described in former COTTAGE GARDENERS as being a sort of nursery for successional wood. With many of these it is merely necessary to reserve two or three leaves or joints: that is to say, provided they are rushing past and shading the true-bearing shoots of the next year. All axillary shoots, too, we stop at this time. Our readers will remember, that what we term axillary shoots are those which spring forth from the sides of the young shoots of the current year; the term axillary, therefore, we would beg them to bear in mind: it is in general use amongst practical men of any repute, and is sufficiently expressive of the character of such wood. We do not like the use of such terms as *watery wood*; it does not, in many cases, express clearly what is intended; such terms, therefore, should be used and received with some caution. We could ourselves soon coin more ex-

pressive terms for many of our operations; but we consider it better to content ourselves with the terms already existing, which, being conventionally settled, should not be disturbed without very strong reasons. Most of these axillary shoots, then, will by this period be six inches in length at least; and where more walling or fence remains still to be covered, such will be required to remain at the winter's forming, although many foolishly cut them away; indeed, many gardeners cannot fancy them, their appearance differing so much from the fruitful wood. Nevertheless, although by no means fruitful themselves, they are capable of producing fruitful shoots in the ensuing year, in the course of which their character will become totally altered. These, then, may all be stopped at this dressing, and it will impart a woody firmness to them, which will enable them to endure the winter and to avoid being gummied in the succeeding spring.

At this stopping, then, we will suppose (in order to convey some definite idea) one-third of the superior or stronger-growing shoots all over the tree are stopped, besides the axillary shoots, &c. In another fortnight we go over again, and stop about another third portion, on precisely similar principles; and, in addition, many of those stopped only a fortnight before will have commenced growing again; these we stop at every point. The other third remaining, and which will comprise all the weaker shoots wherever situate, we do not stop at all. These continue growing until the end of the season, and, of course, appropriating a portion of that ascending sap of which their stronger neighbours were deprived by stopping. There can be little doubt, moreover, that a portion of the descending sap, elaborated by the superior shoots (which will soon, under these circumstances, produce a surplus) becomes appropriated by these inferior shoots in its passage downward to the roots; for we have repeatedly found, during the last twenty years, that, by a systematic and severe course of stopping on the principles here laid down, it is perfectly easy to cause the lower portion of the tree to become stronger than the principal branches. We have reared trees on this system, commencing operations the year after planting, which have astonished old practitioners; trees possessing two powerful arms or branches, the one right the other left, at the lower part of the wall, and almost parallel with the surface of the soil, whilst all the centre of the tree, usually the strongest, was under complete subjection,—in fact, not half the strength of the lower shoots. This was not done, however, by winter pruning; such could never have accomplished it. To use a nautical phrase, we like best to "trim the vessel when she is in full sail."

It will be understood here that, in speaking of stopping a third of the shoots at one time, we do not intend such dry rules to be of too stringent a character. We have supposed a case in which a large, fine, and strong-growing peach, covers two-thirds of the space of wall allotted to it; one, in fact, which has been planted some five or six years. Much deviation from such a case will be necessary under a variety of circumstances: weak trees require no stopping at all.

R. ERRINGTON.

THE FLOWER-GARDEN.

MESSRS. PAUL AND SONS' ROSE NURSERY, CHESHUNT (*Continued from page 209*).—We left off our account of this interesting nursery at the point when

we had arrived at the avenue of pillar roses. Passing round the end of this delightful avenue, the walk leads to what the proprietors call the *Rosetum*. This is a considerable plot of ground laid out in three long beds, the middle one being a long oval. Gravel walks and box edgings divide the beds from each other. The tallest standards are planted in the centre of each bed, half standards next to them, and dwarfs next to the box edging. The soil of the beds is of a fine loamy texture, just the right kind for roses. This arrangement shows off the flowers to the greatest advantage. This rosetum has only been planted two seasons, and the best kinds only being selected of both old and new sorts, the amateur will find here a good place to suit his fancy, and choose the very best for his garden. Duplicates of all the kinds, excepting the very newest, are in the nursery rows in other parts of the ground. Amongst so many excellent varieties it is an invidious and almost hopeless task to particularize any as being better than the others; but as some were pointed out to us by Mr. W. Paul as being most suitable for bedding or planting out in clumps, we shall endeavour to describe them, and by doing this make our observations of, what is the aim and end of all our writing, utility to our readers.

BEDDING ROSES.—*Auberon*, hybrid perpetual, bright rose changing to red; a superb large full double kind, flowering for a long season. *Caroline*, tea-scented China, blush, pink centre; a large double variety, flowering from June till the frost sets in. *Miss Clegg*, noisette, a large, double, beautiful pure white, very dwarf, blooming in clusters for a long season. *Pamela Alba*, noisette, a scarce rose of very dwarf habit, free flowerer, very double, and pure white; excellent for pot culture, for forcing, and bedding. *Philibert de Lorne*, hybrid Bourbon; a beautiful variety, well worth growing. *Joan of Arc*, hybrid China, white, centre rose; a superb flower. *Le Commandant Fournier*, hybrid perpetual, brilliant red, large, and very double. *Jean Bodin*, new hybrid perpetual moss; a good rose and free bloomer.

WEEPING ROSES.—The most elegant of all the forms the rose can be shaped into is that of a drooping tree. Several were pointed out to us as being good examples of this mode, especially *La Belle Thérèse*, a dark rose of drooping habit; *Jaune de Prez*, hybrid perpetual, buff, with yellow centre—the specimen here measured 21 feet in circumference; *Adolphe*, hybrid China, beautiful.

NEW ROSES.—Of those which we noticed as being particularly good, we name the following:—*Countess de Segur*, a hybrid Provence. *General Negrice*, hybrid perpetual, beautiful, good form, and pure white. We were told it is a good pot rose. *Duchess de Praslin*, blush, rosy centre. *Comte Boubert*, hybrid Bourbon, fine habit, rosy crimson. *Comte des Batailles* (the giant of the battles), a splendid new rose of the most brilliant crimson, shaded with purple. *Queen Victoria*, tea-scented, a fine yellow.

Of good old kinds, not well known, the following were pointed out:—*Lady Hamilton*, a hybrid perpetual, very dark puce; full and large. *Grand Capitaine*, fiery crimson, like velvet, and very double. *Nathalie Daniel*, hybrid noisette, peach blossom; very beautiful and double. *Lady Alice Peel*, a dwarf of a deep colour; very double, good form. *Dr. Arnold*, richest crimson. *Domestique Bécar*, fine lilac. *Ohl*, Gallic, dark crimson, and scarlet shaded; large, and very double. *Valeau*, hybrid China, brilliant crimson; good form, and very double.

Beyond the rosetum are two long beds of seedlings,

some of which were in flower. One in particular we noticed, a dark crimson, four-seasons' rose. Passing to the left we entered a field of roses, in rows, for sale. Here we saw numbers of the finest kinds in full flower, perfectly healthy, not an insect to be seen, and making fine strong shoots for the next season. At the lower end of this field were two long beds, bounded at the edges with bricks, and filled with sawdust: in it were plunged pots of seedling pines and various shrubs. The chief interest in these beds was the novel mode of shading the seedlings. At about a yard distant from each other willow rods were bent over; and, as they had been put in green in the spring, they had taken root at each end. Almost every bud had broken, and the shoots thus produced shaded the seedlings sufficiently from the summer sun, without drawing or otherwise injuring them. We think this mode worth imitation for various purposes where shade is desirable, being so simple and so cheap.

WALL ROSES.—Crossing from the field of roses, a walk led us to a wall which stretches down to the dwelling-house. This wall has been planted against it several of the best kinds of roses. We noted the following as being particularly good at the time:—*Laura Davoust*, a hybrid multiflora, pink, changing to blush; a beautiful double rose, flowering in immense clusters. We had the curiosity to count one bunch, and found it contained upon one stem between thirty and forty perfect flowers; and this was by no means an uncommon head, there were plenty more quite as numerous. From this description our readers will perceive that *Laura Davoust* is, for covering a wall, a most excellent kind. *Leopoldine d'Orleans*, evergreen climbing rose, white, shaded with rose; beautiful, and very double. *Myrianthes renouée*, evergreen, blush, striped with rose; small and double; a beautiful wall rose. *Russelliana*, hybrid multiflora, dark crimson; very fine and double; a strong grower. Though not so free a bloomer as the above, the colour and form of this rose renders it a desirable variety.

We then visited the propagating-by-cuttings department, which is a manufactory of plants on a large scale, some twenty or thirty thousand cuttings being struck annually. Here are ranges of pits, heated by hot water tanks, in a chamber covered in with slates and boards, with about six inches deep of sawdust to plunge the cutting pots in. Such are the means used for striking cuttings, and, apparently, a successful mode it is.

We noticed in one of the houses a fine specimen of that new and elegant plant, *Zauchneria Californica*, in full bloom, three feet high, two feet across; but, on account of being rather forced, the colour of the flowers was deficient.

The houses for forcing roses are of considerable extent. One of them is now occupied with some specimens of *Cryptomeria japonica*, and other kinds of pines, besides a great number of seedlings, of various ages, of *Cedrus Deodara* and *Arucaria imbricata*.

Such are the brief notices we made at this interesting nursery. We shall only add that the whole is in good order: excellent walks, fresh-raked borders, and not a weed to be seen. We must now close the account of our visit by remarking that a pleasant day we never spent, the weather being fine, though somewhat too hot, which rather caused some of the roses to droop. We visited afterwards the gardens of H. B. Ker, Esq., C. Warner, Esq., Mrs. Bosanquet, and R. Hanbury, Esq., near Ware, in all of which we noted some things that we trust

will be interesting and useful. But our pages warn us that our allotted space is nearly full, and, therefore, we must reluctantly defer giving those notes till next week.

FLORISTS' FLOWERS.

FUCHSIAS.—All that are planted in the borders will now be growing freely, and producing their elegant blooms of scarlet and purple profusely. They are susceptible of being trained in various ways. If planted to cover a bed in the parterre, the shoots should be pegged down so as to completely cover the soil. The shoots should then be allowed to grow upright, as much of the beauty of the flowers would be hid and spoiled by the rains if kept too close to the earth.

Standards.—Fuchsias also make excellent standards, and in that form the flowers are seen to the greatest advantage, hanging like ear-drops gracefully, and, as it were, courting you to examine their beauties. To obtain a standard form, commence when the plant is young, shortening the side shoots, and training to a straight stick the central shoot. As this shoot advances, replot the plant to encourage its growth. When it has attained the height of two feet, you may prune off the lowest tier of branches quite close to the stem, shortening the others, and so on till the stem has reached six or more feet high. Perhaps some of our readers may ask—Why not prune off the side shoots at once? If that was done, the shrub would neither grow so rapidly nor make so stout a stem. Any of our readers may easily prove this by planting two fuchsias, or any other kind of shrub or tree, as near alike as possible in health and size. Prune one in the manner above described, and cut off all the side shoots of the other: the difference between the two would soon be manifest.

Fuchsias against a wall.—These plants thrive and flower admirably if planted against and nailed to a wall. They grow here rapidly, and cover the naked wall as beautifully during the later months of the year as any plant we know. If the border at the foot of the wall be made of light rich compost, the fuchsia will last several years. The shoots may either be protected with mats through the winter, and so kept alive, or they may be left unprotected, and allowed to die down to the surface; but the roots must be protected with some tanner's bark, coal-ashes, or short litter, through the winter. They will then spring up with great vigour in the spring, and with shoots so numerous as to require three-fourths of them plucking away, in order to give the others room on the wall.

The fuchsia may be used also as a pillar plant; and a most elegant one it is, too, for that purpose. Planted amongst other shrubs it makes a nice bush, if allowed to grow just as it pleases. It will look fresh and green, and flower profusely, when there are few shrubs in that state during the autumnal months.

DAHLIAS.—Such as have not been well secured with stakes must have them applied without further delay. Look over our former instructions, and put them in practice as the plant grows and the flowers appear. Should any of the side shoots grow very strong, and there is danger of their breaking off at the place where they spring from the main stem, let more stakes of sufficient length be driven in to support the side shoots. Be content with a moderate number of flowers—one flower to each shoot will be

quite sufficient—and you will have a better chance of having good show flowers. Look diligently for earwigs and slugs, both being great enemies to spoil your best flowers and plants.

PINKS.—The beauty of these flowers will now be rapidly passing away. Cut off all decaying flowers, and keep the remaining ones tied up neatly. Pippings that are rooted should be planted out in a kind of nursery-bed. Nip off the leading shoot, to cause them to break, so as to make bushy plants. If you wish to save seed, of course you must leave a few pods on your blooming plants, choosing the best formed and most perfect flowers for that purpose.

PANSIES.—The early layered and early struck cutting plants will now be in fine flower. Protect them from heavy rain and hot sunshine with shades. Cuttings put in later, that have rooted, ought to be potted now to make strong plants, to be protected in frames through winter. T. APPELEY.

GREENHOUSE AND WINDOW GARDENING.

PREPARATION FOR WINTER.—In the height of summer, when stove plants can be safely trusted into "cold pits" and warm greenhouses,—when cuttings will strike in the open borders, as well as under glass, and while the gardeners are resting on their oars as it were, without even yet taking a thought either how their stock is to be housed next winter, or best arranged for another season,—the amateur and the young beginner ought to look about them, and see that cold pits, frames, and greenhouses, whether new or old, are in proper repair. All new pits, and, indeed, plant erections of all descriptions that are to be made use of next winter, should now be constructed: every week this work is delayed renders the structures less fit for plants in the coming season, and less substantial themselves during after years. The most extravagant way of beginning gardening for the first time is by getting up winter accommodation for a select assortment of half-hardy plants late in the autumn, and in a hurried manner; therefore, I would strongly advise that those of our readers who are now hesitating about doing such and such repairs, or building such a house or pit as Mr. so-and-so has found so useful—or who, perhaps, have as far advanced as to have "half a mind" on the subject—to give up all hesitation, and get the other half-mind finished off before the end of the week, and then for them to set about the thing in earnest.

We may get a wet autumn. "Long dry, long wet," is a hill proverb in our climate, and, although glass lights may be made and painted in-doors, brickwork must be done in the open air. Young plants suffer much damage from heavy rains, and if their habitations are either under repair, or over wet from being recently put together, what is to become of them? It is true that plants ill-treated in the autumn will not show the symptoms of bad management so readily as they would the want of water in sunny weather,—still the tale will be told, in some shape or other, sooner or later.

In "the good old times" there used to be set days for particular operations. Plants would then be housed on a certain day or week in the autumn, without reference to the weather. If the flues were cleaned out ready for action, the sashes painted, and the glass in repair by the autumnal equinox, it

was thought good management; but in our day the weather determines those points, and we must be in readiness to act on a few hours' notice. Then, the sooner we begin the more safe we shall be at the end of the season.

Now for plants to fill these houses and bloom in the autumn. Here I must congratulate myself on being placed between two such good friends as Mr. Appleby and Mr. Fish, who lend me a helping hand occasionally to fill the greenhouse and the window sill. I was much puzzled early in the season what to do about the *achimeneses*; they are so pretty and so very useful for my department that it seemed hard to be obliged to pass them over in silence because they are strictly stove plants early in the season—not more so, however, than cockscombs. Now, this is an instance out of several others that came before us the first season, proving, without much doubt, that it was desirable to have a department of these pages devoted to stove and forcing purposes. It is very gratifying to all of us engaged on THE COTTAGE GARDENER, that the extensive demand for the work has enabled the proprietors to increase its size at the original price, and thus enable the writers "to work into each other's hands,"—to use a cottage phrase—as in this instance of the *achimenes*, a name given to this beautiful family by Mr. P. Browne, in his "History of Jamaica," without explaining its meaning; and, I believe, I read somewhere, or heard it said, that no one knows the meaning of the term, or its true pronunciation. By common consent, however, the accent is put on the penultimate—that is, the last vowel but one, thus, *Achiménés*.

I hope Mr. Fish will help me out with other stove or half stove plants for autumn in the greenhouse, such as *justicia*, *eranthemums*, *aphelandras*, and so on. After the geraniums and fuchsias have done flowering, and till the *chrysanthemums* come in, is the worst time in the season for a full display of greenhouse flowers, and without the aid of a little stove one can hardly make both ends meet at that season.

CHRYSANTHEMUMS.—I intended to have left the summer cultivation of the *chrysanthemum* to Mr. Appleby, along with his other out-door plants, but, as he thinks otherwise, I may say that this is just the proper time to get window plants of them, not higher than 18 inches or so. This is done by layering the tops of the strongest shoots into little pots, the same way as they do with strawberry runners for forcing. These shoots are very brittle, and snap almost as readily as glass, therefore they must be very cautiously handled in the operation. Make choice of strong old plants growing in the open border, and single out as many of the centre shoots as you wish for plants of each sort. Have a quantity of small sticks, a foot or 18 inches long—for every shoot ought to be tied down to a stick previously to layering. Take a sheet and bend it down towards the horizontal as low as you can get it without breaking; then, about the middle of it, push one of the sticks firmly into the ground, and tie the shoot to it; now, take a three-inch potful of the richest compost within your reach and sink it in the border, leaving the rim level with the surface, and about four or five inches from the point of the horizontal shoot. The most difficult part of the process is now to be tried by bending down the shoot so that it be half an inch in the pot. The most expert at layering *chrysanthemums* are generally allowed ten per cent. of breakage, and if a young beginner does not break more than five-and-

twenty per cent., he need not blush much. These layers will root much faster if they are "tongued," as we say when we make a slit-cut at the bend. This tongue-slit is made on the under side of the shoot, opposite the centre of the pot, by drawing the knife towards the point-end of the shoot, making the cut about an inch long; then, by turning up the point gently, this tongue separates a little from the bend, and in that position is laid in the pot: the point above the tongue being four inches long must be tied to a small stick thrust down by the side of the pot, otherwise the least puff of wind will break it off at the tongue. When the whole are thus finished, give them a gentle shower, to settle the soil about them; and, if the weather is dry, a handful of moss or something of the kind, to lessen the evaporation from the soil, should be put on the surface. At any rate, the soil in the pots should not get dry during the time the layers are rooting, and the layers need not be removed till the middle or end of September, as, although they ought to be well rooted long before then, the nourishment they derive from the mother plant will greatly assist them to form strong flower-buds. When they are to be removed, first cut the old shoots just outside the pots, and immediately give them a good watering, but on no account disturb the pots at this stage, for the roots are probably out through the bottom, and over the top of the pot also if it was covered with moss, and if they were disturbed the same day as the youngsters were weaned from the parent, the check both ways might prove fatal to the whole experiment. Leave them as they are one whole week, then, with a spade, loosen up the pots, and the roots, if out in the free soil, will thus be preserved. Pot them as soon as they are up, using pots of a size to take in all the roots comfortably, and as rich a compost as you can make—say half rotten dung and half loam. Place them in the shade for another week, and, if the weather is dry, sprinkle them over with water twice or even three times a day. The whole secret in getting good dwarf plants from layers is that no check whatever be allowed to their onward course. The moment you can see flower-buds on the *chrysanthemum*, whether as dwarfs or tall bushes—but not before—use rich liquid-manure freely. Whatever the state of the weather may be, they should have manure water at least every other day, but none before they show for flower, for that would cause them to grow on still taller than is natural to them. I would much recommend this practice of layering large numbers of them, and, if they are not all wanted in that way, three or four might be put into one pot when they are taken up, and thus form large specimens of less height than can be had any other way. They will come in useful where tall plants could not stand, and where small dwarf ones would make little show.

Cuttings, or divided portions of the old plants, turned out into a free border last May, if well attended to according to previous directions, will make the best flowering plants with the least trouble; and, from this time, these should be checked at the roots once in ten days. This is done by pushing down a spade about six or eight inches from the side of the plant, and half round it, so that one-half of the roots are cut; the other half of the circle may be cut in a similar way ten days afterwards. Each time pour down a quantity of water in the opening left by the spade, and the cut roots will suck it till new ones are formed; for every root that is cut at this season will immediately form two or three more, and thus abundance of feeding roots will be formed in a small

compass, so that they may be got into ordinary-sized pots when taken up, and receive less check in the operation; whereas, if the roots are allowed a free scope all the autumn, they will travel so far from the common centre that no pots large enough can be got for them, so that either the roots must be cramped close together, or, as is most generally the case, the best part of them cut away altogether, and this at the very moment when the more active ones are wanted to sustain the vigour of the plant.

I have often heard the plan of planting them out for the summer spoken against, and I have no doubt this was owing to the bad management of their roots; and I am equally certain that the amateur, who has only a few hours in the day to look after his plants, will find the planting out system the best, if he will but attend to these simple rules. Many soft wooded plants, such as *Brugmansias*, might be thus planted out in the borders for the summer, and, by a timely curtailment of their roots, be removed back into pots without the least danger. We all know how very luxuriant such plants will grow after the beginning of August, and how difficult it is to ripen this late growth in our damp climate; but by cutting through one-half of their roots at one time, and the other half a week or two afterwards, we prevent this luxuriance, and at the same time we are laying a foundation for a set of young healthy roots near at home. Sometimes it is necessary to dig out the soil from one side of a large woody plant, so as to get below it, to cut off some main fangs or tap roots, but this should also be carefully performed, and, one by one, a third of these large roots cut at a time, and the opening to be slushed in with water. Any body who knows one end of a spade from the other might take up plants so treated late in the autumn, without losing a leaf; and thousands of beautiful plants, taken from the borders on the approach of frost, are sacrificed every season for want of these precautions. This chrysanthemum business has involved us into such a wide field of operations, not dreamed of half an hour ago, that want of space alone compels me to stop; for when one lets the mind have its own way in relating or describing operations in gardening, and among flowers particularly, the difficulty is to press back the accumulations of thoughts which strive to be first out.

D. BEATON.

HOTHOUSE DEPARTMENT.

INSECTS.—The man who commences gardening with high hopes of pleasure and ultimate success must do so, if he wishes to preserve serenity of mind, with the full conviction that there are disappointments to be met with, and enemies to be encountered, that for diversity and number may well be denominated *Legion*. It is not our present purpose to refer to the effects of an unpropitious season, when the hopes and exertions of months are dashed in an hour, but shortly to allude to some of the best means of keeping down, or destroying, some of those insects, which, though small when individually examined, are yet capable, when wielding the power which congregated masses possess, of contesting with us for the produce of our skill and the results of our labour. I do this not because I have anything novel to advance, but simply because knowing it as a fact that many of my amateur friends are in trouble upon the subject; that they frequently resort to expensive and yet roundabout means for effecting a remedy; and that not seldom the remedy is as bad as the di-

sease, the plants being next to totally destroyed along with the insects—a result which might have been averted had they been conversant with the experience of others, obtained by many a hard and uncouth knock, when there was no COTTAGE GARDENER, or other cheap periodical, to pioneer the way; and I do so, in addition, to prevent frequent repetition, and because convinced that, however distasteful it is to see plants covered with vermin out of doors, the sight becomes intolerable under the protection of our glass houses. Amongst these our opponents, all existing for wise purposes—all tending, if nothing else, to incite us to activity and industry, without which man cannot be happy—one of the most prevalent and devastating in its ravages is the

APHIS, PLANT-LOUSE, OR GREEN FLY.—It unhappily needs no description. Every man who grows a rose bush, a peach tree, a cucumber, or a melon plant, will, unless he be peculiarly favoured, ere long have the misfortune of beholding it. The rapidity with which this insect increases is truly astonishing. No wonder if their sudden appearance was looked upon by the ignorant as something supernatural, and that even philosophers, who ought to have known better, from these and many similar events, have talked wildly about spontaneous generation, and mere matter waiting to become organised. *Reaumur* calculated that one *aphis* may be the progenitor in five generations of nearly six billions of descendants, and also that it is possible that ten successive generations may be produced by some of the species during one summer. The first generation is oviparous, that is, produced in spring from eggs deposited in autumn. Their extraordinary increase in summer is owing to the fact that the young are viviparous, or produced alive. Towards autumn eggs are deposited for the first brood the following spring, and thus the same returning warmth that unlocks the bud, hatches the egg of the insect to feed upon it. Hence the practice of darning over our deciduous fruit trees, &c. during winter and early spring, with some adhesive mixture, the object being either to destroy the eggs of insects or prevent as much as possible the hatching and escape of the young. Some have wings, others seem destitute of them, and different families of plants seem to be attacked by different species, but all partaking of a kindred character. The injury they occasion is very great, by extracting the vital juices of a plant by means of their long slender proboscis. Soon even our fields would be turned into barrenness if it were not for birds and the larva of other insects which feed upon them.

Well, leaving out of doors, what are we to do with those that infest our plants within? They are extremely soft, and may easily be crushed between the thumb and a couple of fingers as they adhere around a bud or at the termination of a shoot. The part should be syringed afterwards, to prevent their juices adhering. "Oh, horrid! I could not do such a dirty, cruel thing!" Dirty! the man who would garden must not be over-sentimental about his finger-ends. Gloves! aye, use them if you will; they may be suitable for ladies, and have been recommended for gardeners by the best friend they ever had.* Though respectfully differing from that great teacher here, unless when thorns and bushy briars were concerned, we should look upon their use by gardeners as involving just a shade more wisdom than arraying *pass* in boots. Cruel! A peasant girl, when sensi-

* The late Mr. London.

tively shrinking into a heap at the sight of what her ignorance led her to look upon as a hideous reptile, exclaimed, "Kill it, but do not hurt it." If Mr. Aphis is to be destroyed, I know no means by which he can suffer less than by adopting the squeezing system; and I suggest it here, because, if attended to at an early period, other more complicated operations would be unnecessary. Hard syringing alone will do much to dislodge and something to destroy. When only a few plants are to be subjected to the operation, they should be taken out and laid alternately upon a cloth or board, and for these reasons: first, that the plant may easily be turned and moved, so that every cranny may be easily reached; secondly, that the water used may not fall into and soak the soil in the pot; and, thirdly, that the aphides dislodged may be safely disposed of. Unless for delicate plants, clear lime-water—made by throwing a shovelful of quicklime into a barrel, and allowing it thoroughly to settle—will, for this purpose, be the best; but, in general cases under glass, the most effectual remedy is repeated doses of tobacco-smoke. How apply it? Not as one of that valuable, generally-useful class of gardeners, who began to twitch the corners of his mouth at the bare mention of smoking some frames—and well he might: his cucumbers had got very bad with the fly; he procured a quantity of tobacco, and then he laid himself down and puffed away for hours, using as his instrument a tobacco-pipe, and his own mouth as an injecting agent, until he was sick and tired alike. You smile, but little better was the system adopted in my younger days. When a house was to be smoked, several of the younger men had to take it in turns; no matter their repugnance to the noxious weed. According to the size of the house to be smoked, a certain number of flower-pots were set upon its floor; at the bottom of each a piece of live coal was placed, then a piece of dry paper, then some dry tobacco, then the rest rather moist, and, above all, a covering of some moist substance, such as moss, to ensure plenty of smoke. The pot being set on the floor, little or no air could enter from below, but this was obviated by drilling or breaking a hole in the side of the pot near to its base. At each of these holes a boy or man was placed, to see that the process of combustion went on. Happy was he who could procure an old bellows, for, if not, he must blow with his mouth as best he could until the house was completely filled! We say nothing of the reeling sensations, and the scent of garments, after such an operation, which, even now, is too often performed in a similar manner. In getting rid of the barbarous, we will not discard the useful, and, therefore, we will retain the garden-pot as the easiest come-at-able, and, for first cost, the most economical utensil for the purpose; an iron one would just be more lasting. We will not even trouble ourselves to drill a hole in its side, as, by simply elevating the pot upon any two substances, (two small pots inverted answer admirably,) there will be a free admission of air to support combustion from the hole in the bottom. After lighting and filling as above described, all you have to do is to get out of doors, and watch the operation. If well lighted and properly damped, they will never want to be touched. Three or four 6-inch pots will be sufficient for a large house. In smoking frames, carry the pots from place to place as wanted, catching its hot rim with a thick piece of woollen cloth. When only a few plants are infected, a single light may be shut off for that purpose. If there are open laps in the glass, it must be covered with damp

mats or cloth, to keep the smoke in. If no glazed light can be appropriated, and the plant-house adjoins the mansion, a piece of glazed or painted calico, either fixed to or thrown over hoops, will be useful, as both plants and smoking-pot may be set within the enclosed space, after having been previously placed out of doors. In such circumstances, the pot is easily examined. Many instruments have been devised for effecting the same object, most of them attached to a hand bellows, with convenience for fire and tobacco, and a tube for conveying the smoke. Those who are interested in seeing Mr. Aphis stupefied with a puff, may amuse themselves with a fumigator, though even then they must beware of blowing or bellowsing too hard, or they will scald the leaves as well as the vermin. For real utility and economy, as respects time, labour, and money, commend me to the garden-pot. The simpler the agent, the more effectually it performs its work; many gimcrack tools and utensils would only be lumber to a good workman. I must close with two special directions:—Fumigate when the *first* insects appear; if you wait until they cover the leaves you might as well leave it alone. Smoke *several* times rather than give too great a dose at once; some of the species are worse to kill than others, and these are generally upon plants the most sensitive to smoke. Err upon the safe side. ROBERT FISH.

THE KITCHEN-GARDEN.

ASPARAGUS.—Attend now to your beds by the application of liquid manure, with salt dissolved in it, or, if showery weather prevails, let salt be occasionally sprinkled over the surface of the soil. Protect the outside rows from the driving wind, either with pea-sticks as they become out of use, or with a few stakes driven in to support rope-yarn stretched along them; for the wind at this season is often the cause of serious injury to asparagus, by twisting the stems from the crowns of the plants.

GLOBE ARTICHOKEs should be liberally supplied now with good liquid manure, and the fruit, as it becomes too old for culinary purposes, should at all times be cut off, as, if allowed to remain and blossom, it weakens and exhausts the plants, and should the season be a dry one may even kill the roots.

CELERY.—Continue to plant out this vegetable, and keep those crops that are already out clear from suckers. Frequently hoe and surface stir the soil, giving every possible assistance by the application of liquid manure, increasing the same both in strength and quantity as the soil becomes moistened by rain. Earth up the earliest and strongest crops by degrees, first very carefully drawing up the outside leaves straight, and pressing a little earth against them, near the collar of the plant, with the hand, to prevent the earth getting into the heart of the celery, which, if allowed, causes deformity and makes a harbour for worms and insects, the forerunners of disease and decomposition. If any symptoms of the celery fly are discovered, dredge over the whole foliage, when moist, with fresh, dry chimney soot, which is the best remedy we could ever discover for its extirpation; and which application is at the same time a most excellent stimulating manure for encouraging the growth of the crop.

ROUTINE WORK.—*Angelica* may be sown now so that it may be well established for the next season's crop. *Coleworts* and *cabbages* should still be plentifully planted in succession; the previously planted

out crops having the yellow leaves carefully picked off, and the earth kept well stirred about them. Sow another small sowing or two of the best kinds of cabbages: for should we have a long dry autumn, after so fine a summer, the early sowings may become too luxuriant to stand through the winter for the spring supply. The soil having become warm to a considerable depth, in consequence of the late sunny weather, will remain so for some time yet to come, encouraging, perhaps, the growth of the early sowings too freely, and rendering extra sowings of *cabbage* and *cauliflowers* at this time necessary. Where ground can be spared, *lettuce* and *endive* may be planted to fill the vacancy; for remember that no spare ground must be suffered to remain at this season, but let an abundant change, as well as a good supply, of vegetables for winter use be now provided. Continue to put out all *kales*, *savoy*s, *Brussels sprouts*, and vegetables of a similar kind; they may be planted much closer now than they could a month ago.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 37.)

JULY and early August is the time for clipping and slipping. In showery weather much may be done in this way, and the neatness of the garden greatly increased, as the wild and luxuriant shoots of midsummer, beautiful as they are, disfigure the arrangement of our borders by overspreading them, and filling up openings left to produce some little floral effect. Hedges must be trimmed carefully, and not cut in notes; it requires some skill to do this well, and a lady cannot easily undertake it. If her garden is bounded by a fence of this kind, for which I have a remarkable fondness, she will be obliged to employ some labourer to assist her: it is one of the operations, even in a simple garden, that the hand of man must perform. A hedge is one of the most beautiful objects possible; it is a combination of objects that delight the eye and mind; and wherever I am, however fine the view, however beautiful the things are around me, I invariably and involuntarily cast my eyes on the nearest hedge. Perhaps a garden hedge has less claim to admiration, because the neatness and trimness of its form take from its grace and beauty; but even it might be so managed as to retain much of the richness and *ease* of the lovely wild ones, and thus add to the pleasing effect of the garden. Let me request "my sisters" to pay some little attention to the hedges as they pass through the fields and lanes. Perhaps they smile at my taste, but I am sure they will soon begin to understand it; for we often pass unheeding by a thousand beauties which surprise and delight us when our attention is once drawn to them. There is such infinite variety in hedges, such a rapid succession of different foliage, flowers, creepers, herbs, and plants, such beauty in the careless entanglements and dark masses of the bank that usually supports them, that I am never weary of looking and admiring, and wondering at the exquisite perfection of the least esteemed works of God. A hedge and ditch speak as eloquently of the Creator as the lofty mountain and the waving forest. They abound with those valuable herbs and plants so useful in their medicinal properties, yet so little known except among the poor. Scarcely can we gather a leaf in which a healing virtue does not lie; thus telling us, in its turn, what merciful provision has been made for the evils en-

tailed upon us by sin, and faintly reminding us of the "tree of life," whose leaves "were for the healing of the nations." Even the common nettle—the least pleasing of all the wild plants—has its peculiar virtues. The young tops when boiled are excellent; and how many scanty meals may be improved by a dish of this wholesome vegetable. I often hear the poor complain of the want of "green food," while the fields, and lanes, and banks, abound with the young tender nettle top! The young leaves of the dandelion are quite equal in flavour to spinach, with only a slightly bitter taste, and also offer an excellent repast for those who will take the trouble to gather them. Nettle-juice is an unfailing remedy for bleeding at the nose; when other remedies fail, put it on lint and place it in the nostril—it will soon effect a cure. Nettle-tea is also an effectual cure for that troublesome complaint the nettle-rash. The very young tips of the plant should be selected, and infused in boiling water; then, if a wine-glassful is taken every morning *before* breakfast, relief will soon be obtained. This is a simple cure, and *wise men* may smile, but let the cottager fearlessly use it and profit by it.

Perennials may still be increased by cuttings or slips. Wallflowers, double lychnis, double rocket, and many others, indeed all sorts of perennials, may be thus treated; and to ensure their striking, water very freely, and cover them for a few days with a flower-pot, which is even better than a hand-glass, because it shades them also. Never let slips or cuttings become dry—abundance of water is essential to their existence. Evergreens also may be increased by layers and cuttings now; water abundantly and shade if possible. Heartsease yet may be slipped, or offsets taken from it; they do extremely well if watered and shaded till they root. In fact, water and shade are the only points to be attended to in these operations: if they are carefully observed, little danger need be feared.

The passion flower is one of the beautiful climbers of this season, and at this time all the superfluous and irregular shoots of the year should be cut out. It is an elegant plant for twining round the pillars of an entrance, or those of a verandah; its light, feathery leaves, and the large, quiet-looking flowers, are very ornamental, although it is less gay than many of our summer beauties. It is a wild flower in America; it twines itself round the tall trees of those vast forests where even the birds fear to dwell, and where almost unbroken silence reigns; and it flings itself in sportive gracefulness from the loftiest boughs, wreathing them with its rich and abundant blossoms. We can scarcely believe that the slight sprays we train so tenderly should mount so high in their native land, and cling round such vast supporters, braving the sweeping tempests that rush so fearfully over those wild regions—yet so it is; and it teaches us how boldly and how safely *we* may meet the storms and trials of life if we will but cling closely to Him who is "the strength of our salvation." The frail plant that seeks support from every bough is less weak than man, as he totters in his own proud helplessness; but when resting on the Branch, which storm and tempest cannot shake, how firmly, how fearlessly he stands! Let the blooming creepers round our cottage porch instruct us, and lead us to twine our hopes and affections around "those things that are above," around "Him whose strength is made perfect in our weakness," that, "when our heart and flesh fail," He may be "the strength of our heart and our portion for ever."

NEW GREENHOUSE AND HARDY PLANTS DESERVING CULTIVATION.

ROSE-COLOURED LAPAGERIA (*Lapageria rosea*).—This will certainly succeed in our greenhouses, and, perhaps, in our borders, being a native of the cool districts of Chili. It is a climber, and is possessed by Messrs. Veitch, of Exeter. Its flowers are crimson, spotted with white, but have not yet bloomed in this country. It will probably require the same treatment as the genus *Eustrephus*—growing in sandy peat, and propagating readily by cuttings.—*Bot. Mag.*, 4447.

APRICOT (*The Haisha*).—This is a native of Syria, sent to the Horticultural Society by J. Warrington, Esq., who had it from the garden of J. Barker, Esq., at Suedia, in that country. Fruit earlier than the Breda, roundish, about two inches in diameter, acutely channelled, semi-transparent, slightly downy, pale citron colour, marbled with red; flesh tender, juicy, sugary, delicious, citron coloured, and parting freely from the stone; stone small, with kernel sweet like a nut.—*Hort. Soc. Journal*, iv. 189.

NEW FIRS.—From the mountains of Upper California, Mr. Hartweg brought seeds of four firs, which, as well as plants raised from them, have been liberally distributed to members of the Horticultural Society. They are all hardy. *Pinus Benthamiana*: this noble pine seems to be entirely a mountain species, its stem sometimes attaining the height of 200 feet, and a circumference of 28 feet. There is little doubt but it will prove quite hardy, and yield a very valuable timber in England. *Pinus radiata*: this grows on the level of the sea, and very near the beach, in California, and is therefore likely to be valuable for sea-side plantations. It is very handsome, attains a height of 100 feet, and is feathered with branches down to the ground. *Pinus muricata* is a mountain pine, growing within a few miles of the sea-shore in California. Its height seldom exceeds 40 feet, nor the diameter of the stem 12 inches. It is the Obispo, or bishop pine, of the Californians. *Pinus tuberculata* grows close to the beach, as well as far from it, on the mountains of California. Extreme height 30 feet, and diameter of stem 10 inches. It will probably be good for plantations in our maritime districts.—*Ibid.* iv. 211—20.

HORTICULTURAL SOCIETY'S SHOW.

JULY 11TH.

AGREEABLE to our promise, we proceed to notice some parts of the exhibition, either omitted or very briefly noticed in a former number. As we commenced with single, new, or rare plants, we shall now give a brief account of single specimens showing superior culture. As might have been anticipated, on account of the advance of the season and the long succession of sunny hot days, the plants of this description were less in number than at previous shows this year. There were, however, some specimens that displayed as much as ever the untiring zeal and successful skill of the present race of gardeners. Twenty years ago, the worst specimen present would have been considered as the perfection of cultural skill. Nor have we yet reached the acme of perfection. So long as the public patronize such exhibitions, and so long as the managers of exhibitions give liberal prizes, the same spirit of emulation will spur on the exhibitors to produce more perfect objects for their patrons to admire and councils of horticultural societies to reward.

SINGLE SPECIMENS OF ORCHIDS.—Messrs. Veitch obtained a well-deserved prize for a noble specimen of that fine species, *Saccolabium Blumei*, with five spikes of its beautiful flowers, each more than a foot in length. Mr. Ivison had a prize also for a noble well-flowered plant of the *Oncidium guttatum*. Mr. Woolley, gardener to H. B. Ker, Esq., Cheshunt, exhibited and obtained a prize for *Oncidium leuconichum*, with very bright coloured flowers. Mr. Green had a prize for an *Aerides odoratum*, past its best.

SINGLE SPECIMENS OF OTHER PLANTS.—The following obtained prizes: Mr. Ivison, for a good specimen of that elegant plant, *Leschenaultia splendens*; Mr. May, of Ealing, for the difficult-to-grow plant, *Roealia ciliata*; Mr. Green, also, for a well-grown and finely-flowered *Leschenaultia formosa*; Mr. Ivison, for that new and handsome plant, *Balsamina repens*; and Mr. Glendinning, for an excellent specimen of that beautiful variety, *Gloxinia Wortleyana*.

SINGLE SPECIMEN OF HEATHS of superior culture.—The only prize awarded was one to Mr. Bruce, gardener to Boyd Miller, Esq., of Tooting, for a fine *E. depressa*.

Amongst the miscellaneous subjects there was from Messrs. Veitch a neat specimen of the new pitcher plant, *Nepenthes sanguinea*, with four of those singular, large, blood-coloured, elongations of the leaf, commonly called "pitchers," from their similitude to that domestic article. We must notice also under this head the elegant *Lycopodium*, from Mr. Warner's garden. It is of an upright, almost shrubby habit, with blue-greyish leaves, in the way of *L. coccineum*.

PELAGONIUMS.—Considering the lateness of the season, these class of flowers were exhibited in respectable condition, though not so numerous as on former occasions. Collections of six new and first-rate varieties in 8-inch pots:—1st prize, to amateurs, Mr. Staines, for Rosamond, Lalla Rookh, Foster's Ariel, the Pearl, Marion, and Forget-me-not. 2nd prize, to Mr. Robinson, gardener to I. Simpson, Esq., for Aurora, Oberon, Beauty of Clapham, Negress, the Pearl, and Annette. Collections of six in 11-inch pots:—1st prize, to Mr. Parker, gardener to I. Oughton, Esq., of Roehampton, for Hector, Isabella, Duke of Cornwall, Camilla, Rosy Circle, and Zenobia. 2nd prize, to Mr. Reddel, gardener to F. Ashley, Esq., of Staines, for Sarah Jane, Duke of Cornwall, Desdemona, Arabella, Orion, and Pulehellum. Collections of six, by nurserymen, in 8-inch pots:—1st prize, Mr. Beck, of Isleworth, for Star, Governor (seedling of 1848), Painter, Princess, and Cassandra. 2nd prize, to Mr. Bragg, of Slough, for Ariel, Ondine, Lalla Rookh, Grenadier, Alonzo, and Alderman. Collections of six in 11-inch pots:—1st prize, to Mr. Gaines, for Magog, White Surrey, Lord Warden, Sarah Jane, Princess, and Mary Queen of Scots.

FANCY VARIETIES.—1st prize, to the same, for Hero of Surrey, Queen Victoria, Jenny Lind, Bonquet tout fait, Virgil, and Multata. 2nd prize, to Mr. Staines, for Anais, Woodsii, Statuiska, Nymph, Madame Meillez, and Yeatmanii.

CARNATIONS.—This most lovely class of flowers was shown in excellent condition, and did great credit to the exhibitors. We cannot but observe here that the Council committed a mistake in not separating the two classes of exhibitors—amateurs and the dealers in florist flowers. We are quite sure the latter felt a repugnance in exhibiting against their customers. This mistake ought to be remedied at future exhibitions. 1st prize, to Mr. Ward, of Woolwich, for Heyworth's Hamlet, Colonel of the Blues, Cartwright's Rainbow, Martin's President,

Puxley's Prince Albert, Beauty of Woodhouse, Kay's Majestic, Ely's Lady Ely, Young's Earl Grey, Hale's Prince Albert, Lady of the Lake, Wilmer's Conquering Hero, Addenbrook's Lydia, Calcutt's Juba, Ward's Sarah Phyne, Holmes's Count Pauline, Ely's Regular, Milwood's Premier, Berenger's Earl Spencer, Ely's King of Sorelets, Calcutt's Brutus, Village Maid, Hale's Sir H. Smith, and Berenger's Premier. 2nd prize, to Mr. Norman, of Woolwich, for Puxley's Prince Albert, Hughes's Sir J. Reynolds, Wilmer's Frederick, Squire's Defiance, Ely's Mrs. Burkhill, Hepworth's Hector, Calcutt's Brutus, Wilmer's Mrs. Moore, Hale's Prince Albert, Halliday's Queen of Purples, Wildman's Buonaparte, Hepworth's Vivid, Ely's Sir R. Hill, Halliday's Lord Ranelagh, Simpson's Queen, Holmes's Count Pauline, Brookes's Flora's Garland, Smith's Princess Royal, Kay's Primus, Turner's William Penn, Cartwright's Rainbow, Jackson's King of Purples, Easum's Admiral Curzon, and Ely's Lady Ely.

PICTURES.—1st prize, to Mr. Norman, for Norman's Prince of Wales, Crask's Prince Albert, Burrough's Mrs. Bevan, Norman's Daphne, Mathew's Ne plus ultra, Norman's Pride, Elkinson's Lord Chanda, Garratt's Lady Dacre, Burrough's Duke of Newcastle, Barnard's Mrs. Barnard, Sharp's Lelegans, Ely's Emperor, Wilmer's Prince Royal, Norman's Miss Hardinge, Burrough's Morgiana, Norman's Lord Nelson, Costar's William Cobbett, Shaw's Beauty, Garratt's Red-edged, May's Portia, Norman's Prince Alfred, Kirtland's Miss Annesley, Garratt's Seedling, and Norman's Elizabeth. 2nd prize, to Mr. Ward, of Woolwich, for Marr's Prince Albert, Hardstone's Sarah, Hardstone's Purple Perfection, Cray's Beauty, Lady Chesterfield, Sharp's Agitator, Miss Desborough, Giddin's Vespasian, Mrs. Bevan, Norwich Rival, Ward's 156, Duke of Newcastle, Crask's Prince Albert, Princess Augusta, Norman's Beauty, Wildman's Isabella, Barnard's Mrs. Barnard, Mathew's Enchantress, Kirtland's Queen, Sharp's Lelegans, Ward's No. 2, Lady Dacre, Cook's President, and Seedling of 1848.

PINKS.—1st prize, to Mr. Norman, for Turner's Mrs. Edwards, Young's Lord J. Russell, Ward's Great Britain, Maclean's Narborough, Buck, Hylar's Goliath, Norman's Lord Hardinge, Kirtland's Prince Albert, Unsworth's Omega, Maclean's Captain Tyson, Bragg's George Glenny, Kirtland's Lord Valencia, Gay Lad, Hale's Queen of England, Harris's King of Purples, Kirtland's Beatrice, Smith's Whisper-in, Church's Queen, Smith's Diana, Costar's Suppressed, Harriet, Hooper's Pride, Wilmer's Laura, Duke of Marlborough, Young's Double X.

We shall conclude our Report next week.

TO CORRESPONDENTS.

TO ALL OUR READERS.—We are always gratified by receiving letters from you, but pray put your questions briefly; a page of newspaper would contain half-a-dozen questions if put without unnecessary accompaniments. Time, remember, is valuable, and much of it is lost in reading what is not relative.

MELONS (William T.).—Your plants will not be as vigorous as they ought if each does not produce you in succession four melons; if they are a small-fruited variety, each ought to yield you six. All depends, however, upon the health of your plants; if they are weak, you must be contented with half the above number. Remember, also, that much depends upon your judgment in thinning the fruit.

HAND SERR-PRIZES (An admiring Subscriber).—If, when in London, you visit Messrs. Deane, Dray, and Deane, Swan-lane, you will be able to see for yourself Dr. Newington's, Jesse Ross's, and Mr. Nicholl's dibblers, each of which deliver the seed at the time they make the holes; you will see there also, probably, hand-barrow drills. We have never tried any of these machines.

APRICOTS DROPPING (Immediate).—Although you will have been visited with rain before you receive this answer, yet we recommend you to remove three inches of the surface soil within a circle of about

six feet round the stems of the trees; put into the basin thus formed some wet mulch, or long stable-dung, and then return over it the soil if very dry weather returns, give a liberal soaking of water over the mulch three times a week.

CAMELLIA PROPAGATION (A Beginner).—You ask which are best for this purpose, "cuttings or slips." If by the latter you mean shoots torn from the branch so as to have a heel of the old wood and bark attached to them, then we reply slips are best, for though they root more slowly, yet they more frequently succeed than cuttings of the double varieties; both, however, are very liable to fail. The best mode of propagating the double camellias is by grafting. If you persist in trying slips or cuttings you cannot do better than follow the directions for rooting the cuttings of the single kind, given by Messrs. Chisler, the extensive cultivators of this flower at their Vauxhall nursery. They say:—Take the cuttings in July and August, or as soon as the young shoots are sufficiently ripe at the base; cut them smoothly over with a sharp knife at a joint, and divest them of one or two leaves at the bottom, and then plant firmly about two inches deep in pots half filled with compost, and the upper half with fine white sand. The cuttings are then well watered, and the pots plunged in a tan-bed, which gives out a gentle warmth, and kept closely shaded for three or four months, by which time short fibres, or a callus from which they afterwards diverge, are produced.

BOUQUETS (Ibid.).—We shall return to this subject, and shall be glad of any suggestions from our readers.

MANURE ROUND TREES (A. Z.).—Mulch lying on the surface of the soil near the stems of trees will not cause them to canker. The nearest mode, and the most moisture-retaining, is to place it just within the surface, as recommended above for apricots.

LUCIFER (W. P. D.).—Yours being more than a foot high may be cut, and a second time when it attains the same height; the best time is just when the flower is visible. After this year you may cut it six times annually.

STRAWBERRY PLANTS (J. M. M.).—Write to Mr. Appleby; he will do what you require.

RILOTT'S FLOUR-BALL POTATO (F. Fletcher).—Can any one inform us whether this variety has pink eyes?

GARDENERS' DICTIONARY (W. W.).—You can obtain it, at the price named of our publishers.

MAGNOLIA NOT FLOWERING (Alpha).—The most common cause of this is that the soil is not sufficiently dry and well drained; another cause is its being overshadowed by trees.

OUR-POON GRAPES (Ibid.).—Against your south wall plant a Lady Muscadine (white) and a Black Hamburgh, or, if living in a northern county, an Early Black July. You will find full information relative to them in our first volume. You can have a trellis on your slate roof; we should prefer an iron net, which you may have for about 6d. per square yard, and training the vines to it by means of narrow strips of thin lead.

MOSSY LAWN (A Person's Wife).—We fear that your soil requires draining, and, if so, no surface application will benefit you; drainage will be your only remedy. As an experiment, pare off, by means of a turfing-roan, an inch deep from a square yard; if the grass springs up again upon this pared piece, do the whole the same, and keep it well rolled.

MOSS AS A COVERING (An Admirer of Alpines).—We are not aware of this ever being salted, or dipped in brine, before being used as a covering to the surface; we should think it would destroy the moss, but if not it would certainly keep slugs from labouring in it. Have any of our readers used salted moss? To some plants the rain filtering through it would be fatal. We are obliged by your suggestions about the flower shows.

ORANGE AND CITRON TREES (J. J.).—You will find, at p. 92, a notice of the insect which, probably, infests these, and at p. 113 the soil which will suit them. They do not require much water, and are losing their leaves, probably, from being kept in air that is too dry for them.

MELONKOE BED (Ibid.).—You may make it now. You can buy spawn at any large seedsmen's in London. Sunshine does not injure cucumbers and melons; they should be shaded from it at mid-day during very hot weather. Frogs will not eat woodlice.

HORSE-RADISH IN ASPARAGUS BED (J. S. L.).—One huge root of this is deeply imbedded in your asparagus bed, and you have vainly endeavored to kill it by constant cutting and salting it with lime. We were in your predicament we should at once dig it out, taking care to excavate down to the very bottom of its tap-root, and leaving behind the least possible amount of the side-roots; we should then return the soil of the bed, and replant the vacancy made with three-year old asparagus next April. A straggling plant or two of the horse-radish would probably come up next year, but these could be kept down by constant cutting deeply within the soil as soon as a leaf appeared above the surface. Never apologize for troubling us; we are always ready to tell all we know to those who require the information we possess.

HORSE-DUNG (B. S. P.).—This, when thoroughly decayed, is a good manure for flower-borders. When fresh, it contains so much of ammonia that it is too stimulating for them before they bloom, causing them to grow too much to leaf.

LILIUM LONGILOBIUM (L. O.).—This, the long-leaved lily, is the name of the flower of which you sent us a specimen from Mr. Young's garden at Taunton. Mr. Weaver, gardener to the Warden of Winchester College, has paid some attention to this flower, and tells us that some bulbs out in the open ground two years ago, but they have not yet flowered in that situation. He also keeps one or two in pots in a cold frame, to winter; and one pot in the greenhouse. The one in the greenhouse flowered a month or five weeks ago, and was 18 or 20 inches in height. One of the plants from the cold frame is in flower, and about 15 inches in height. The other has not yet flowered. It is, properly, a greenhouse plant. When the stems have died away in autumn is the time for moving the bulbs. They require a rich light loam.

STRAWBERRY GRUB (*Mitochonda*).—The whole of the packet you enumerated arrived at our office, and the box was unopened until it reached the hands of the editor. There were then no grub or grubs in it, but, if he remembers correctly, some dry earth. If the insects had been there, they would have been examined and reported upon as fully as are all subjects submitted to us, without any favour or preference, and without any regard on our part to trouble or expense. If you can describe the grub, for we presume they have by this time entered the chrysalis state, we may still, perhaps, be able to furnish the information required.

GAS LAKE (*Gasolonia*).—You will find two very full essays upon the refuse of gas works as a manure at pp. 95 and 165 of our first volume.

SOILING FLOWER SEEDS (*T. G. Williams*).—Calceolarias, cinerarias, verbenas, and mimulus, or monkey flower, may yet be sown, though rather too late to bloom early next year. Drain your seed-pots with, first, a large piece of broken pot or an oyster shell over the water, propping it up with a small piece of pot or slate, to let out the hole. Upon this place some similar pieces of broken garden-pot, and upon them, put an inch thick of small broken pots, about the size of narrowfoot pens. Over the whole put some tuffy siftings of peat or loam, or of both: this will prevent the soil from choking up the drainage. The soil best suited for such things is a compost of light loam, leaf-mould, and sandy peat, in equal parts. Fill the pots with this nearly up to the rim, press it gently down with a light iron bar of wood, so as to make it firm and smooth. Then sow your seeds, covering them very thinly with some of the compost sifted fine, press this again very gently with the piece of wood, give a gentle watering with a very fine rose pot, and place the seed pots in a frame, or on a shelf of the greenhouse. To prevent the seed pots from getting wide pots, thinly, as soon as you can get hold of the plants, placing them in the same place again. As soon as they are large enough, put them singly into very small pots, repotting them as they grow larger, until you get them into pots $\frac{3}{4}$ inches diameter, in which they may remain till next year. It is too late to sow scarlet lychnis, sweet-williams, and Drumstick stocks, to flower next year.

BEES (*G. G. Boyle*).—The middle or end of September is the best time for taking honey from the common straw hive; the method will be given in our next calendar. Your seeing no drones in your two swarms is not at all unusual; the queens in both were late in laying drone-eggs, so that though very few went out with the first swarms, yet an abundance was in both the second swarms; and as your first swarms were late, there has not been time for drones in any number to be bred. We never recommended more than one entrance to a colony, be it ever so numerous. "I have," you say, "planned a hive beneath that in which the bees are working, is very objectionable, because you can never obtain fine honey." On that principle, a box cannot be taken away, with safety to the stock, until there are three, and then the uppermost, which must at least be one year old; and having once been the hive, it will be filled with brood and pollen, and the combs thereby very much darkened, and, in all probability, many of the cells will be found partially filled with the pollen.

GLADIOLUS CARDINALIS (*Ibid*).—You ask what depth of covering this should have? Three inches of soil is all you need; protection covering, three inches of dry coal-ashes, and a thatch to throw off the wet. The flower-spikes of *G. ramosus* branch out occasionally, and so do those of other gladioli. The name is not at all appropriate.

JAISES (*Ibid*).—*Iris* Nussiana and *I. Chalcidonta* are the same. All the varieties of *Iris* are called by the names of the gardeners, but their names are so ephemeral that a selected list would do little good. We will get a list of the best tuberous-rooted irises.

FUCHSIA CORYMBIFLORA (*Y. Z.*).—This flowers freely if the wood is ripened in the autumn. Keep it rather dry after the middle of September, and in November prune it back to the ripe brown wood. Your own treatment after that ought to agree with it.

OLEANDERS (*Ibid*).—As the flower-lush wither, your oleanders are either badly rooted or they want more sun and water while growing. Keep them in-doors all the autumn, and the tops near the glass, and do not let them go to rest till late in November; but, *first of all*, see if the soil in the pots is not too close and hard, if so, pick out as much of it from the pots as you can, and add some fresh rich loam in its place, using the same pots.

CAREY BONE FLOWERING (*Ibid*).—You can after flowering ought to be kept in-doors till the ground is finished, and after that to be placed in a sunny situation to the middle or end of September, according to the state of the weather. During rain, turn the pots on their sides; too much rain injures their roots.

FUCHSIA CUTTINGS (*T. G. Williams*).—You will find instructions how to pot off these at p. 102 of vol. 1, and at p. 36 of the present vol. Those struck in May should be potted singly immediately. Treat *F. fulgens* as we have directed above for *F. corymbiflora*. Guano is a word of three syllables. Have the colouring matter of your spring analysed. Any nurseryman in London will gladly do this for you. Victoria tubulosa. The orders presentable at our office fit the first volume exactly. You must have got one of Low's portfolios.

FERNERY (*R. P. B.*).—You will find full directions for making one at pp. 98, 106, and 128 of our first volume.

SEAL-KALIN (*R. P. B.*).—Self-sown plants, if not very young, will do for growing in this way, as directed at p. 162 of vol. 1. Full grown plants are best for the purpose.

CATALOGUE OF PLANTS (*S. F. C.*).—We will consider your suggestion. Your plant is salsify (*Trigonotis porrifolia*). It is too late for sowing now as a garden plant.

MANGOLD-WURTEL LEAVES (*H. W. Litch*).—You may pick off the oldest outside leaves, as well as those of your large brocchis which did not head in the spring. Roll them before you give them to your pig; but all green food before so employing it, and after a month's trial you will not regret your trial.

LATE STRAWBERRY (*Ibid*).—The best that we know is the Elton. Swainston's Seedling occasionally bears a second crop late in the

autumn. The White Alpine is a perpetual bearer: we have gathered a large plateful of this in the middle of December.

CHARCOAL (*F. S. A.*).—This should be used in pieces about the size of a small nut, and it is mixed with the soil in pots to render it porous, and facilitate the drainage. Some persons are of opinion that this slowly gives carbonic acid in the soil, which is beneficial to the roots of plants.

OUTSIDE PAGES (*Rev. H. Parker*).—You will see that we have anticipated your suggestion, and increased our size at the same time. You need not have the first two pages of the Number that had only two pages of advertisements bound up with the rest. Direct the binder to cut them off, or cut them off yourself at the inner marginal line.

MARSHY GARDENING (*J. and J. How*).—We must refer you to what we said to similar applications at p. 207 of our first volume. You are better qualified for the occupation than those to whom we there replied, and the capital you can command (£100) is sufficient for your support until your harvest begins, and for stocking your plot of three or four acres, if you content yourself with growing only those things that are in much general demand; but eight miles from one market, and five from another, is a long distance; and, then, there is already an abundant supply of garden-stuff there? You must consider these points, and then decide for yourself.

CAMPULOWES (*A. Subserber*).—If you sow in the third week of August, in a sheltered border, the seedlings will be ready at the end of September in a similar border, most of the plants will stand through the winter unimpaired, especially if you sprinkle about an inch in depth of coal ashes between the plants and close up about their stems. We have wintered them thus in Essex, without even the protection of a mat. They will be ready to plant early in April. Roses are propagated by cuttings and budding. Rhododendrons may be raised from cuttings, but layering is the best mode of propagating them (see p. 205, vol. 1.). You may still stop and disbud cherry-trees on walls.

ROSE AND LILY (*A. Subserber, Hertsburgh*).—The drainage from a cowshed is nearly of the same richness as that from a stable, and will therefore require a similar amount of water to be mixed with it. You may apply it with the greatest advantage between the rows, or round the stems, or in shallow trenches near cabbage, cauliflowers, spinach, and lettuce, as well as to your flowering annuals in a poor soil, as soon as the flower-lush of the latter are well advanced, as well as whilst they are blooming.

BEES (*H. G. B.*).—Your swarm, put into a common straw hive in June, had better be left there until next year. *H. S. P., Northampton.* It is too late to put side boxes to your hive, unless they are at all times objectionable. Although the hive weighs 40 lbs. there is no way of getting honey from it without endangering the stock. It is quite necessary that hives should be placed so that the sun shines upon them the greater part of the day. You had better let your stock enter a swarm next year, and have this one an "improved cottage hive," or into "Taylor's amateur's box hive." Whatever may be the weight of your stock at the end of the season, on no account destroy the bees for the sake of their store. Had you managed them as directed in our calendar, you might have had 20 lbs. of honey in a glass, and 30 lbs. in the hive for your winter store.

MOVING YEW-TREES (*Rev. Jacob Robson*).—You state that, "in the latter end of February last, two yew-trees, of it is supposed, a hundred years' growth, were removed from the grounds of Lord Ilford, at Aldenham, and planted with evergreen trees, and at the same time, they were scarcely look as if they would live. Being lately in the Lake district, you there saw two others, of about the same age, at Birtwistle, on the banks of the Windermere, (where a beautiful little church has been built by a private individual,) but they look less promising even than those at Tylneydale."—Under these circumstances, we ask for your advice. We have heard of yew-trees a hundred years old being safely transplanted, and we have moved them when they were above sixty years of age, but much depends on the kind of soil they grow in. From shallow light soil they can be moved easily even at an age up to a hundred years; but for a yew-tree at that age is comparatively a young one. They should be well prepared at least twelve months previously, by digging out a circular trench two feet wide, and a yard from the stem; every root to be cut off at that distance, and the trench to be filled in with light sandy earth. In this, young fibrous roots will work their way, and at regular intervals be very careful to preserve those young roots. The end of September is the best time to remove large yews. They should be well supported with forked poles to keep them steady, and be well watered in dry weather during the next season or two.

NAMES OF PLANTS (*Y. Z.*).—That of which you sent the flower, seed pod, and leaf, is *Physalis Barbadosia*, or *Barbados winter cherry*. That of which you sent a sprig is *Weddingia rosmarinifolia*. (*William T.*)—The plant of which you sent flowers and leaves is *Spiraea ulmaria*, a hardy shrub; that of which you sent "the oblong leaves," *Abies cedrus*, the Venetian spruce. It is used for tanning in some parts of Spain. (*R. L. B. P.*)—The plant of which you sent us only a sprig off a very young shoot, we have but little doubt is an *Ancusa*, but not determinable without a branch with its year's wood, as so many of them are much alike in this young state. You say it is six years old and has not bloomed; but one-half of its roots now, 15 inches from the main stem, and water it well, or, if in a pot, turn it out of doors now, and keep it rather dry through the autumn.

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WEEKLY CALENDAR.

M	D	W	AUGUST 9—15, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
9	Th		Linnet's song ceases. [dy seen.	Common Ragwort.	38 a. 4	33 a. 7	10 1	21	5 13	221
10	F		St. Lawrence. Silver-spotted skipper/butter-	Common Balsam.	39	31	10 30	22	5 4	222
11	S		Dog days end. [congregate.	China Aster.	41	29	11 3	23	4 55	223
12	SUN		10 S. APT. THIN. Swallows and Martins	Tall marsh Sowthistle.	42	27	11 42	24	4 46	224
13	M		G. DOWAGER B. 1792. 2nd brood of Martins	Marsh Groundsel.	44	25	12 MORN.	25	4 35	225
14	Tu		Goldfinch's song ceases. [fledged.	Graceful Zinnia.	46	23	0 30	26	4 25	226
15	W		Assum. B.V.M. Large blk. Staphyline seen.	Virgin's Bower.	47	21	1 26	27	4 13	227

ST. LAWRENCE was a native of Spain, and is venerated by its people as their guardian saint. He was martyred at Rome in the time of Valerian, for distributing the treasure of the church among the poor, and thus disappointing the cupidity of the Roman prefect. He died on a gridiron placed over a slow fire, on this day, A.D. 258. The battle of St. Quintin was fought on this anniversary in the year 1572, and as it terminated in favour of the Spaniards, their sovereign, king Phillip, in conformity with a vow he had made, built a church, a monastery, and a palace, all commemorative of St. Lawrence. The palace—the far-famed Escorial, near Madrid—is built in the form of a gridiron, and all the chief ornaments, in some made, refer to the same instrument of torture. Its erection occupied twenty-four years, at an expenditure of six millions sterling.

ASSUMPTION OF THE VIRGIN MARY.—This is a very distinguished festival of the Roman Catholic Church, instituted in 813 in commemoration of what its members believe, viz., the assuming, or taking up, into heaven of the body of the mother of our Saviour after her decease. It was customary in the same church to implore a blessing, at this harvest period, upon herbs, plants, roots, and fruits.

PHENOMENA OF THE SEASON.—We have followed the entire process of vegetation, from the first germination of the seed, through the growth of the plant springing from it, till this has itself ripened its fruit; but we are reminded, by a flight of thistle-down flying across our study window, that we have left unnoticed the care taken by their Creator to provide for the dispersion of the ripe seed, and the consequent preservation and healthy growth of each species. This is a subject so full of interest that we shall devote a separate note to each mode of dispersion, beginning with that which very early engaged the notice even of poets—flight before the winds.

"Nature nought disdain: thoughtful to feed
Her lowest sons, and clothe the coming year,
From field to field the feather'd seeds she wings."

Nor must we forget in this thought upon "the wisdom of God

INSECTS.—At the close of last and during the whole of the present month, the Black-arch moth, the male of which is represented in our drawing, may be found, during the day-time, with closed wings upon the trunks of oaks and other trees. It is the *Pistura manacha* of some entomologists, and the *Bombix* or *Ligustris manacha* of others. The males are smaller than the females, measuring about one and a half-inch across the opened forewings, whilst the females, which are nearly as large, are more yellowish in colour. The colour of the moth is a creamy white, spotted and streaked with black, in the manner here shown. The hind-wings are dusky. The antennae are black, and the body dusky, tinged above with pink. The caterpillar is ash brown, with tufts of reddish hair on the back, and a black, heart-shaped, spot on the second segment of its body.

It probably varies in colour according to the plant on which it has fed, for it is by no means particular in its nourishment. It feeds on the leaves of the Scotch fir, hramble, birch, apple, oak, elm, aspen, lime, and willow. The caterpillars appear in June and July. They have never appeared very abundant in this country, but in Prussia and France, at the end of the last century, they did so much injury that M. B. Beckstein says that it "would not be repeated in a hundred years." In 1829, at Stettin, four hundred acres of pines, oaks, birches, and beeches, were entirely stripped of their leaves by them.

manifested in the creation," that these seeds are ripe at an equinoctial period of the year, when the strength and prevalence of winds render them more than ordinarily efficient agents in their diffusion. Some seeds, such as those of the dandelion, salady, pine-boll, succory, groundsel, and thistle, are furnished with a plume-like appendage, very varying in its curious structure, called by botanists the *pappus*, but all of a parasol or shuttlecock form, and so all promotive of the floating of the seed upon the air. How effectual this is for the intended purpose our eyes have sufficient evidence every year, but of the efficacy of the winds in this respect we have still further evidence in the facts that M. Deandolle found two lichens on the south-west coast of France—lichens natives of Jamaica—which he believed to have been brought to where he discovered them by the south-west wind. A still more striking example is afforded by the Canadian flea-bane (*Erigeron canadensis*), which, within a century after its introduction from North America, spread itself over France, England, Holland, Germany, Italy, and Sicily. The long downy awn of the feather grass (*Stipa pennata*) is peculiarly constructed not only for conveying the seed to a distance, but also for sowing it. This awn is barbed, and, catching hold of any object, twists round and round until it conveys the seed not only down to the earth but into it, and then breaking off leaves it to vegetate. Other seeds have appendages of another form, but still calculated to bear them to a distance from the parent plant. Thus, the seeds of the *maple* have membranes attached to them resembling the wings of a fly; those of the *elm* have a similar membrane encircling them; and those of the tulip tree (*Liriodendron tulipifera*), and of some of the pine tribe, are similarly winged. We might easily multiply such examples, but we will pass on to notice that some seeds are so minute and specifically light, that, without any appendages, they float upon the air, and are easily conveyed away to regions very distant from that where the parent is resident. Instances of these are common in ferns, mosses, and fungi, of which the puff ball (*Lycoperdon pratense*) is a familiar instance. The seeds of these are so minute that Ray, one of the most careful of nature's observers, estimates that a single stalk of spikenard (*Asplenium*) yields a million annually.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
9	Fine.	Fine.	Fine.	Fine.	Rain.	Fine.	Showery.	Stormy.
Highest & lowest temp.	70°—49°	80°—55°	82°—57°	74°—45°	62°—52°	71°—58°	60°—44°	69°—40°
10	Fine.	Stormy.	Fine.	Fine.	Rain.	Fine.	Showery.	Stormy.
	68°—55°	83°—60°	69°—44°	70°—41°	68°—53°	71°—55°	66°—48°	74°—43°
11	Rain.	Fine.	Fine.	Fine.	Stormy.	Fine.	Fine.	Cloudy.
	68°—46°	71°—47°	73°—46°	73°—54°	70°—53°	73°—67°	79°—61°	70°—59°
12	Fine.	Fine.	Fine.	Rain.	Cloudy.	Showery.	Fine.	Cloudy.
	65°—41°	78°—55°	77°—47°	76°—54°	68°—49°	75°—51°	80°—53°	73°—54°
13	Cloudy.	Fine.	Cloudy.	Cloudy.	Stormy.	Fine.	Fine.	Cloudy.
	70°—54°	78°—50°	78°—60°	66°—51°	66°—50°	66°—44°	64°—49°	60°—50°
14	Rain.	Fine.	Fine.	Rain.	Cloudy.	Fine.	Fine.	Rain.
	72°—54°	85°—43°	79°—59°	65°—49°	62°—53°	77°—49°	79°—52°	60°—53°
15	Fine.	Fine.	Stormy.	Cloudy.	Cloudy.	Showery.	Cloudy.	Cloudy.
	70°—50°	82°—52°	85°—60°	65°—47°	63°—44°	79°—50°	80°—56°	69°—55°



It is quite needless for us to reiterate what may be found urged by us in favour of "cottage allotments" from the first page of our first number down to the last number we issued to our readers; but we have received such testimony of the benefits arising from

"The Seacombe Gardens Allotment Society," and of the spirited way in which the allotments are cultivated, that we are induced to publish its rules, and a letter relative to the subject from Mr. W. Henderson, the very intelligent nurseryman of Oxton,

near Birkenhead, who may be considered as the steward of this allotment estate.

CONDITIONS OF LETTING, AND RULES TO BE OBSERVED
BY THE TENANTS.

- 1.—The rent to be paid annually on the first Saturday in August.
- 2.—The tenant to give up possession at any time on receiving three months' notice. The amount of compensation (if any) to which he may be entitled for crop in the ground to be determined by the committee.
- 3.—No tenant is allowed to re-let his allotment, to plant fruit-trees therein, or any labour to be done in it on Sundays.
- 4.—The fence, and road adjoining to and opposite each allotment, to be kept in repair by the occupier of such allotment (by road is meant that within the enclosure).
- 5.—Any dispute that may arise amongst the tenants, having reference to these allotments, to be referred to the committee, whose decision is to be binding.
- 6.—Any tenant who may not comply with the foregoing conditions, or who may be convicted of any offence against the laws of the realm, will be at once deprived of his allotment; and the Society wish to impress upon the tenants that the retention of their respective allotments will depend on their own industry, sobriety, and general good conduct.

Seacombe is a village in Cheshire, close to Birkenhead, and Mr. Henderson adds these particulars concerning its allotments:—

"The garden allotments at Seacombe were brought into existence through the exertions of some generously disposed gentlemen residing in the immediate neighbourhood. A few of the names of the more prominent promoters of this truly philanthropic little scheme being — Smith, Esq., — Venny, Esq., H. Winch, Esq., — Blackburn, Esq., the Rev. Mr. Roberts, the clergyman of the place, and Mr. T. Dean. These gentlemen form a committee of management; the Rev. Mr. Roberts being chairman, and Mr. Dean secretary. The present aspect of the allotments testifies most clearly and encouragingly to the success of the society and its good management, as well as to the industry and perseverance of the tenants. This would forcibly appear to you, had you but seen the state of the land at this time last year—then, a piece of the most uneven and uninviting portions of common land upon which you have, perhaps, ever looked; full of clay holes, and partly swamp, with a ditch of stagnant and pestiferous filth (not water) traversing its length. The first step taken by the committee was to have an efficient main drain formed in the centre, into which the side drains enter. The boundary fence was next put up, and then the ground was divided into 36 allotments, of 400 square yards each, for which each tenant is to pay a rent of 10s. per annum. This, though a seemingly high rent (about 26 per acre), yet it must be remembered that the landlord, the lord of the manor, will receive no rent, at least only a nominal one, and the committee, after the necessary expenses for keeping up the boundary fence, &c., are defrayed, will return the surplus in the shape of prizes among the tenants, for the best kept and most judiciously managed allotments. In addition to this, Mr. Winch has kindly supplied, gratuitously, the poorer tenants with garden seeds.

"I have been requested to direct my attention from time to time as to the manner in which the allotments are cropped and kept; and, in the month of September, to report on the whole, specifying, of course, particular sections, with my opinion as to the best arranged, or any other commendation I may deem deserved, either by the produce, quality, succession, or order, &c. I need hardly tell you with how much pleasure I endeavour to second the views and efforts of a society taking up such a benevolent undertaking. I do not speak of this 'benevolence' as being so commendable in a pecuniary or charitable point

of view (neither, I am well aware, do the gentlemen connected with the society), but I contemplate in it that genuine philanthropic spirit, which yearns for the bettering of the condition and contributing to the happiness of our fellow men; of withdrawing the mechanic and the labourer from the haunts of vice, folly, and demoralization; from the contaminating influence of the *beer shops*, and inducing him to employ his leisure hours in a garden, where, while his intellect is kept clear and his mind serene, he is preserving his bodily health, and, at the same time, adding to the resources and comforts of his family. Surely there can be no scene so truly gratifying to the properly constituted mind as to see the bronzed, sturdy labourer, with *interested* mien, cheered by 'his thrifful wife's smile,' who, seated near him on the 'green cope,'

'Wit' her needle an' 'ber shears,
Gars auld claes look ainist as weel as new.'

whilst the youngsters ply the hoe, or by hand eradicate the intruding weed. Then fancy such a family, 'labour o'er,' set round the clean though humble board, enjoying the well-earned 'crust and cheese,' with the addition of a salad of their 'ain reerins,' and, if you will, a cup of beer, *brought home to be shared by all*, not sottishly drunk with boon companions on the skittle or ninepin ground.

"Such a picture, thank God, is not now an uncommon occurrence in 'happy old England;' but I would have them multiplied until every waste common and barren bog shall be covered with luxuriant and *thrifty* vegetation, ameliorating the stubborn soil and the human heart at the same time, scoring alike the *workhouse* and the *corn laws*.

"I hold there is much of the nature of a *libel* in the reiterated opinion that the labouring class, as a body, are improvident. First place a man in a position to better his condition ere you condemn his want of energy and thriftiness. Illustrative of this allow me to relate a case coming under my own notice. Some years ago, while residing in Scotland, a nobleman remarked to me, 'I wish you would instill into the minds of our countrymen the same desire for tidiness and order in their dwellings and gardens so universally evinced among the cottagers in England.' My reply was, 'My lord, first put them in the same position; give them a place to live deserving the name of "cottage," and pull down, blow up, or burn these miserable hovels.' These hovels were merely four walls, having one opening in the side by way of door, two other holes to let in light, miscaled windows, and another hole in the apex of the roof to let out the smoke; nothing to divide this 'boothie' into apartments but the back of the huge press bedsteads, and destitute of ceiling or covering to the roof-timbers and thatch. The reply was characteristic of the man, 'Let me have,' says he, 'a plan for such cottages as you would recommend.' They were produced, the cottages were erected with all appurtenances (on a small scale) of a comfortable cottage; the miniature flower-garden in front (instead of a midden and puddle), the China roses against the walls, the back-door, covered ash-pit, &c., and the neat kitchen-garden. Having left Scotland before all was carried out, I did not have the pleasure of congratulating the proprietor on his spirited example and the tenants on their changed position."

The following hears such honourable testimony to the decorum and good conduct of those of our fellow-

countrymen whom it is usual to have excluded from such exhibitions, on the plea of their reckless spoliations; and conveys, at the same time, such gratifying intelligence of the increased practice of bee-keeping among cottagers, on the depriving system, that we think it worthy of preservation. Our correspondent, writing from Bury, says:—

"I was very much gratified yesterday (July 27th), at seeing *seventeen* exhibitors of honey at our horticultural show (all obtained by deprivation), both in boxes, glasses, and small hives, *all by cottagers*, and all the honey of the *finest* quality. The show was held in the beautiful grounds of Hardwicke House, about a mile distant from Bury, which, through the kindness of Sir Thos. and Lady Cullum, were thrown open to the public from one till nine o'clock; the stoves, conservatories, &c., being closed at five. The band of the Queen's Lancers, from Norwich, were allowed by their colonel to attend for the day. There were 4171 tickets sold at the lodge-gate, so that, with members and their families, there were nearly, if not quite, six thousand persons present. Our kind-hearted mayor issued a request a few days ago that all shops in the town should be closed at one o'clock, that all persons might have an opportunity of enjoying the treat offered, which was generally responded to; and enjoyed it was, for there appeared to be a smile upon every face. I walked up this morning, and am happy to find that not the slightest damage was done either in the houses or the grounds."

THE FRUIT-GARDEN.

THE PEAR.—At this period of the year, when the solar light begins so rapidly to decline, it becomes necessary to take means to insure a free admission of this fructifying element to all fruit-trees, especially the subject of our present remarks.

It appears strange, to those unacquainted with the habits of the pear, that its long rambling side shoots should be left so long unmolested as we generally find them in most gardens; such are seldom much meddled with until midsummer has passed. When the vigorous nature of the root action is taken into consideration, together with the excitable character of the embryo blossom buds in the early spring, (which may then, by a sudden influx of sap, be speedily transformed into growing shoots) it will be seen that the policy is sound, and that these wild-looking shoots were merely employed as "safety-valves," suffering the superfluous sap thus to expend itself. Nevertheless, the question immediately forces itself on the mind, why encourage the tree to produce superfluous sap? Here, then, is a pivot on which turns a most extensive question, which want of space, and the inconvenience to the reader of digressive sallies, alike forbid us to enter upon at present. We flatter ourselves, however, before the year is out, to fully discuss this question; and we shall then show how much good soil (independent of manure) is worse than thrown away in the formation of fruit borders according to the old maxims.

The time has arrived, then, when the growing shoots of the pear may be stopped all over the tree, if necessary, without damaging the embryo blossom bud of the ensuing year; the character of these is now so decided that no excitement could alter their destiny. Nature has, by this time, rolled them all up like our ancient Egyptian mummies, and, we may add,

embalmed them, too, with a highly elaborated material, which will serve as ready prepared food for the unfolding of the infant blossom bud in the ensuing spring. Such being the case, the next thing is how to obtain a regular admission of solar light all over the tree without any unnecessary amount of mutilation; for either to cut or strip all away but the mere embryo buds would be too severe a process, and would destroy, for a time, that reciprocity of action which nature has wisely established as the chief guiding principle of vegetation.

We may here remark that our practice is at this period to pinch or stop *all* the points of the young shoots, excepting those which are considered leaders at the extremities of the branches. Young trees, however, just establishing themselves, may be left growing, in order to obtain strength to cover the wall, fence, or treillage in the succeeding year. The operator should first go over the tree carefully, and see what short-jointed shoots can be *tied down*, or otherwise trained, without darkening the spurs adjoining them, for all such may be secured. Such being done, and their points pinched, he may at once prune back all the rest to three or four eyes, leaving as many leaves at the base as he can without shading the spurs. Let it, however, be remembered, during the operation, that the whole process is carried out merely in order to admit the solar influences to the embryo fruit buds of the ensuing year, and to induce a fructiferous disposition in those forming for successive seasons; for these will receive an increased amount of elaboration through the sun's rays, which will be of immense benefit hereafter.

Some kinds of pears are apt to become mealy in sunny seasons, of which class is the Easter beurré if on a wall; this merely proves that the climate is too good for them in such seasons, and that less sunlight would be more beneficial. When such is found to be the case, we make a point of leaving somewhat more shading over the fruit; this is easily accomplished by removing a much smaller portion of the waste shoots, which we before advised should have two or three joints left on: in this case they may be left eight or nine inches in length.

We hope our advice tendered some weeks since has been put in practice, viz., that relating to the selection of young shoots. Again we direct a careful attention to the same principle. At this, the last dressing of the season, let every shoot which appears shorter jointed and browner than the rest be reserved, either tying or nailing them down to the wall or fence. Many such will be found to have ceased growing for some time; these are invaluable, and if reserved will speedily be covered with blossom buds. Indeed the principal object of the dwarfing system here propounded is to cause the trees to produce *such shoots alone*, and where the maxims here laid down as to root-culture are strictly carried out such will assuredly be the case; then a tithe of the labour of disbudbing, stopping, &c., will suffice, and the trees will blossom abundantly.

THE RED SPIDER sometimes gets ahead at this period; where such is the case it must have no peace: sulphur should immediately be dusted liberally all over the tree, shaking it beneath the leaves, in order to cause a fine granular coating to settle over the under side of all the leaves.

STRAWBERRIES.—Those who have not planted out their runners should do so immediately: not a day may be lost. Indeed, to be thoroughly successful in the culture of this fine fruit by the annual runner system, it should be planted by the middle of July:

there can be no doubt that the finest fruit by far will be obtained by this course of culture; we think, however, that for heavy crops, on the average, two years old plants will excel them. At this period very strong runners should be selected, and they should be removed with great care, with a ball of earth, by means of the trowel, taking care that not a single fibre becomes dry during the operation: such extra care will make up for a fortnight's procrastination. We would now offer some advice about choice of kinds; many new kinds have been introduced during the last seven years, but we fear but little real advance can be reported as to either flavour or size. The best early berry still for general purposes is doubtless the *Koen's seedling*; this is a universal favourite, and where gardens are very limited indeed, and room can be found only for a small bed, this should alone or principally be selected. Next in order of ripening comes the *Eliza*, a valuable fruit; and then we would place next the *British Queen*. This is becoming as great a favourite as the "Koen's," and deservedly so, for it has every good property. Lastly, the *Elton*, which follows up the series, and completes the list of summer strawberries. The latter kind, if planted about four feet from a wall on the north side, will continue in bearing a whole month after the other kinds have ceased. Those who grow these kinds, which are placed in the order of their ripening, will have no occasion to trouble themselves about new kinds; nevertheless, as many persons make a hobby of trying new sorts, one or two may be added to the stock yearly, not, however, with the intention of superseding the others, or for increased profit.

The ground for the strawberry bed should be well dug and deep, and a reasonable amount of manure in a half rotten state dug in. Any soil which may be at hand may be strewn over the soil before digging. Let every care be taken to keep the plants duly watered during the first three weeks, and when established, or towards the end of August, a good dose of liquid manure may be applied.

CURRENTS.—Those who desire very late fruit on their bushes, should cover some immediately. Ordinary garden mats will do well for the purpose, and before matting much of the superfluous summer shoots must be cut away, in order that the air may freely circulate through the fruit. The proper time to cover them is when they first assume a pink tint throughout the berry.

GOOSEBERRIES.—These may be long preserved on the bush by timely covering. Only some kinds, however, are thoroughly adapted for this purpose. Of course late kinds are eligible, but even amongst these there is much difference. We know of no kind equal, in this respect, to the *Warrington*, called in Cheshire and some parts of Lancashire the *Aston seedling*. We strongly advise our readers to plant this kind rather extensively: it is good for all purposes. R. ERRINGTON.

THE FLOWER-GARDEN.

NOTES OF A JOURNEY INTO PART OF HERTFORDSHIRE—(Continued).

H. B. KER, ESQ., THE SWISS COTTAGE, CHESHUNT.—In the cool of the evening we took a walk with a friend to visit this place. Our way led past the parish church, an ancient building of considerable size, surrounded with large elm-trees. Though situated on a

rising ground, those trees give it a secluded appearance—appropriately quiet as the resting-place for the forefathers of the village. After we had passed the church a little way, we came to a lane on the right, which brought us in sight of a large square brick building, once moated for defensive purposes: it is situated in a large field, or so called park, and was, we were informed, built by Cardinal Wolsey, and had been the residence of the redoubtable Oliver Cromwell. Our road lay through this park to a secluded country lane, at the end of which stood a neat farm-house, with a tastefully-laid-out flower-garden in front. We were glad to observe the beds well-filled with flowers, and very neatly kept: we wish we could say as much of every farm-garden in the kingdom. We inquired the nearest way to the "Swiss Cottage" of the farmer's wife, and received a very courteous direction. Indeed, we expected a civil answer from the possessor of so pretty a garden. It is an axiom with us, seldom failing to prove true, that the cultivator or lover of flowers is a well-bred, civil person. Passing on our way, we arrived at Mr. Ker's. The "Swiss Cottage" is situated close to the road, but so completely hid from it with thick unbragous trees, that one might pass by and never know either that so beautiful a place was there, or, indeed, any place but a thick wood. We found a little gate, forming, apparently, a part of the paling-fence. Through this gate we obtained admittance; and the moment we entered, had occasion for our note-book. The walk leading to the house is paved very neatly with small pebbles; and, as no kind of edging would grow, a row of neat bricks on each side formed the line of separation between the soil and the paved walk; by being set level, they were not offensive to the eye, nor inconvenient to the foot. In such situations this is the best kind of dry, clean, firm walk we ever noticed. The carriage entrance is further on the road; this is formed in the usual way with gravel. The walk we entered by brought us at once to the carriage front. We found the dwelling to be a good imitation of a Swiss cottage on a large scale. Broad solid wooden stairs lead up to the front door, which is level with a covered balcony, running round three sides of the dwelling, commanding beautiful views of a truly sylvan character. The flower-garden in front of the house is prettily laid out: the beds well filled with flowers, and a good rosery well furnished at the further end; this part was in good keeping. Here we met with the proprietor, a gentleman well-known as an enthusiastic amateur gardener. He was so kind as to show us his collection of orchids, as yet in its infancy, yet we observed some nicely-cultivated specimens, and others in a growing state. There, in front of the viney, a large lately-built structure, we were shown the new mode of growing peaches, without a wall and without a house, described and figured in our first volume, p. 228. The method is yet almost untried, but Mr. Ker is sanguine (and from what we saw we think he has reason to be so,) in his expectations of its success. There is an example of it in the Horticultural Society's garden at Chiswick. What is our friend Mr. Errington's opinion of it? In Mr. Ker's garden, root pruning of pears is being tried to some extent, and the trees appear to be forming blossom-buds abundantly. Unfortunately, the shades of night overtook us, and we were obliged to leave sooner than we liked.

C. WARNER, ESQ., HODDESDEN.—Mr. Ker was so kind as to send his gardener the next morning with a conveyance, to take us to the three places mentioned in our last. For this liberal act of kindness

we were much obliged to him, and so, we trust, will our readers, as it enables us to fill the pages of our note-book more copiously, and thus add to the interest and use we hope our observations will lead to.

Immediately on leaving Cheshunt, on the left hand we observed a field of four or five acres very oddly cropped with patches of potatoes, peas, cabbages, and other vegetables. This, our intelligent companion informed us, was an allotment garden, let out in small plots to the cottagers of Cheshunt and the neighbourhood. We were much gratified to remark that the vegetables looked healthy, the potatoes especially, and the whole appeared to be well managed. But we must pass on, to make the most of the day. The country as we went along looked beautiful, this part of the county being well wooded, and the crops, generally speaking, promised an abundant harvest. We did not observe any symptoms of the potato disease, and we trust this year we shall have a plentiful sound crop of that useful esculent. We passed Wormleybury, once the seat of the late Sir A. Hume, and during his lifetime a famous gardening place, possessing stoves filled with the choicest and rarest exotics, but now, like the master, no more. Our first call was at Mr. Warner's. We found the gardeners, the Messrs. Williams, father and son, both at home. The senior has been gardener there for thirty years: under the direction of Mr. Warner, aided by his own skill, he laid out the grounds. The son has the charge of the plants, and, as a proof that he manages them well, especially the orchids, we need only refer to the reports of the great metropolitan exhibitions for this year. The first things we were shown were two vineries put up three or four year ago; they are both glazed with large glass; one with glass 22 oz. to the foot, the other with 16 oz. to the foot, and here we were much struck with the different effect. The heavier glass did not burn the leaves at all, not a single one being touched, but in the other the vines were sadly scorched. The roofs of both the houses are at the same angle; both were started together; and so the conclusion we must come to is that thin light glass is more liable to burn the leaves than thicker and consequently heavier glass. The vines in both houses were strong and healthy, and had a good crop of fine grapes on them. Adjoining the vineries are the houses containing the far-famed orchideous plants: there are two, one for the East Indian species, and the other for those from South America; the latter serving as a receptacle for the former when in flower or at rest. At one end of the Indian-house is some rockwork, covered with fine specimens of exotic ferns, thriving most luxuriantly. At the foot of this rockwork is a piece of water to grow aquatics in. This part is very judiciously made and planted, and has a pleasing effect, besides affording moisture to the air of the house. The collection of orchids is very good, and showed marks of industry and skill in their management, the particulars of which are to be published shortly. Mr. Williams has a good collection of British ferns, which he cultivates in large pots in heat, which they appear to bear with impunity. Passing out of the orchid-houses we came to a long canal-like piece of water. This we think might be improved by throwing it into an irregular form; as it is it has a tame appearance, not at all in character with the ground. At the end of this piece of water, which, by-the-by, contains a good collection of hardy aquatics, we came to a fine specimen of the cut-leaved alder, fifty feet high, the branches covering a space forty feet in diameter. This tree made a good close

to the end of the walk: it had some rockwork planted with ferns under it, which in autumn and early spring, we are told, looked beautifully. This tree caused us to turn to the right, when we had a view of a long straight walk, with borders on each side planted with choice roses and flowers. This walk is terminated by a highly ornamental building, including an elegant bath room, and several appropriate paintings in water colours. The bath itself is paved with porcelain, and the water as clear as crystal. A winding walk led us thence to the temple of roses. This is not a building, as might be supposed from the name, but a fine collection of climbing roses. A mound of earth has been thrown up, pillars of iron placed circularly, with iron rods stretching from each to the centre pillar. Walks under the roses lead to a seat in the centre, and around the whole are figures as large as life. This temple may be imitated at a moderate expense. The winding walk continues past the temple to the extreme boundary of the pleasure ground; and in a retired nook is a good imitation of an ancient ruin, now clothed with that beautiful evergreen—ivy. The walk continues to wind amongst some fine trees and shrubs, up a rising ground, on the top of which is a noble straight terrace walk. From this walk, as you pass along, there are fine views of the temple of roses, the bath room, and the hot-houses, besides the opposite finely wooded hill. We understood on that side of the valley there was a fine collection of the fir tribe, which we had not time to see. Another walk leads from the terrace to what we term the home flower garden—a lawn interspersed with beds of choice plants. At the lower end of this garden is a conservatory of considerable dimensions, filled with some fine healthy orange trees in full fruit, intermixed with camellias. To the right of the conservatory is a small greenhouse, filled when we were there with achimenes, gloxinias, fuchsias, and other summer flowering plants, and in a perfect blaze of floral beauty.

In returning from these houses we were shewn a building put up as an ornamental dairy, and unique of its kind. After viewing this very neat and useful dairy, we came to our starting point—the front of the dwelling-house. It is something remarkable, and, we are sorry to say, *uncommon* to find, in a place so considerable as this, that the gardener who laid out the grounds so beautifully has still, after thirty years' servitude, the care of them. Excepting some large old elms, the whole of the trees (and there are some fine specimens), and of cedars of Lebanon especially, were planted by Mr. Williams, sen. The place is well worthy of a visit, and we are sure both the proprietor and gardeners will have great pleasure in allowing it to be seen by any respectable party. We bade farewell to the Messrs. Williams, mounted our vehicle, and proceeded on our journey to "the Poles." R. Hanbury, Esq.; but the description of what we saw there must be deferred to our next Number.

ROUTINE MANAGEMENT.—The month of August has once more come to us, and, like every other month of the year, it brings its cares as well as pleasures. Spring flowers have departed, and summer flowers are fading, reminding us that time will not abide the will of the mightiest potentate, or the humblest of the sons of the earth; reminding us, also, to "take time by the forelock, and not defer till to-morrow the work that ought to be done to-day." The work now in the flower-garden is first to remove all *decaying flowers*, and next to cherish those to cheer our garden during the two or three

months yet left to us of the floral year. *Grass laurus*: the late rains that have fallen have benefited the lawns greatly. They will require now frequently rolling, sweeping, and mowing. The grass plots, indeed, put on their most pleasing appearance, if properly managed, during the early and later periods of the year. Let all perennials, biennials, and annuals, yet to flower, be carefully tied up, and kept in a neat trim state.

SHRUBBERIES.—Prune in all straggling shoots, and such as are not likely to attain a state of ripeness, especially the shoots of evergreens, such as laurels, bays, and arbutus. Green unripened shoots are sure to be destroyed by frosts, and therefore had better be cut off at once, that the sap may be concentrated upon the better ripened shoots.

FLORISTS' FLOWERS.

PANSIES.—Cuttings may yet be put in of scarce varieties: place them in a sandy soil, under hand-glasses. Such as have been put in some time, and are now rooted, should be taken up, and either planted in a nursery bed, or potted to be protected in frames through the winter.

VERBENAS.—The same directions apply to these plants. Cuttings put in now make excellent plants early in the spring, but require protection from frost during the winter. Verbenas in beds require attention: remove decaying heads of bloom, and peg down those shoots that may be inclined to grow upright or wild. They ought to be now in their greatest beauty.

WEEDS.—All we need say about them is, let not one be seen living beyond the time of producing its seed leaves. Moist weather will bring them up; and a week's neglect will cover your beds with them to a surprising extent.

ACRICULAS AND POLYANTHUSES.—Too much wet will injure these lovely spring flowers almost to death. Let them be protected from heavy rains whenever they fall.

T. APPLEY.

GREENHOUSE AND WINDOW GARDENING.

AMARYLLIDS.—The cold and wet weather at the end of last spring has prolonged the growth of the *Belladonnas*, *Brunsvigias*, &c., in the open borders full a month beyond their usual time of going to rest, and I fear this will prevent them from throwing up their flowering scapes next September time enough to be of much interest this season. If so, we shall have them rising next spring as mere abortions, but all that can now be done to assist them is to keep the bulbs as dry and hot as possible for the next month or five weeks, and this is not very easily done when they are in borders where summer plants are growing, as is often the case. Those under my care are in such a border, and as soon as the rain came on after St. Swithin's day I loosened the surface soil away from the tops of *Josephine*, and placed small glasses over them: this wards off the rain, and the heat of the sun accumulates under the glass, so that a little extra heat is afforded them. Their roots being in moist earth is rather favourable to them than otherwise. Where they are grown in frames by themselves, with no other plants to interfere with their proper culture, no doubt they have gone to rest at the usual time, early in June; or, if they have not, it would stimulate them now to have the soil drawn aside to expose the surface of the bulbs to

the sun, and by having the glass kept on constantly. They cannot be too hot and dry on the surface with only the assistance of a glass covering.

I am anxious to try a cross this autumn between the *Belladonna* and *Brunsvigia Josephine*; and in case my own bulbs of the latter, under the above disadvantages, should not flower, I should feel very much obliged to any kind reader, who may be more fortunate, if he would send me some pollen of *Josephine*. The way to do this is to cut off some of the anthers with short pieces of the stamens attached, as soon as the flowers open. It is not necessary that the anthers should be open, or, in other words, that the pollen should be ripe, because it will ripen after the anthers are cut off, and I forget how soon the anthers of the *Josephine* open after the expansion of the flower. The anthers, if folded in tissue or other soft paper, will travel by post safe enough.

I advise all who possess these beautiful bulbs to try and cross them both ways this autumn. They are very easily crossed. The stamens are long, and may be taken one after another, and by them draw the opened anther across the lobes of the stigma. The three lobes curve backwards, and then is the time to apply the pollen. When the flower begins to fade, see that it does not injure the style by collapsing round it, as it is sure to do if the decaying flower is not cut off in time. Until very recently writers used to recommend a camel-hair brush to dust the pollen on flowers, or rather on their stigmas. For setting grapes, pears, or, indeed, any fruit, the operation being only intended to encourage the fruit to swell properly, a brush is as convenient as any thing else; but, when we want to obtain a cross between two plants, this camel-hair brush is a treacherous instrument, because, after one kind of pollen is used by it, how are you to proceed with the next flower if it happens to belong to the same family as the first? It is perfectly impossible to divest it of all the former pollen without steeping it in boiling water. In short, we may as well dust a dress-coat with a powdered wig as think to effect pure crosses by means of a camel-hair or any other brush whatever.

HYDRANGEAS.—About the second or third week in August is a good time to make cuttings of hydrangeas, to flower next summer in very small pots. They would turn out much finer if the cuttings were taken from strong healthy plants growing for some years in the open ground. The tops of the strongest shoots that are not likely to flower this season would make the best cuttings, as, if rooted quickly under a hand-glass, and the top buds well preserved from damp or accidents during the following winter, they form immense large heads of flower next summer, and prove exceptions to the general saying about the difficulty of placing old heads on young shoulders. A pot not more than five inches over will thus produce one head of hydrangea-bloom larger than any that can be got from old plants, though these be as large as currant-bushes. Another plan for getting large heads from single plants in very small pots is to make cuttings early in the spring from plants then taken under glass for forcing, and as soon as they are rooted they are potted in three-inch pots, and kept in a hot-bed through the spring. About the end of May, or between that and midsummer, they are shifted into their flowering-pots, say five-inch ones; and by the time they are ripe enough to be inured to the open air, where they are generally kept in a warm sheltered place all through the autumn as long as it is safe to trust them out, they are then wintered almost dry in cold pits, and

in the spring are ready for being forced into early bloom, or left to come in by the natural warmth of the season. This is the usual mode followed by gardeners, but the August cuttings answer just as well and are attended with less trouble, for some of the February cuttings often flower the same season, and then they are so small as not to be worth the trouble of keeping them. It also happens, occasionally, that with some of the August cuttings the flower-buds are formed before they are separated from the parent plant, but if they are quickly rooted that does not injure the size of the flower-heads. The best way to make the August cuttings is to cut them about four or five inches long, to remove the two lowest leaves, and to pick out the two buds belonging to them, as I suggested for strong rose cuttings: this will prevent suckers from growing, which will be of some advantage when the plants come to flower the second season, as we always find that two and three-year-old plants flower unequally. These bottom eyes, if not cut out at first, will get up as strong suckers, depriving them of their share of nourishment, enabling them to flower sooner and much larger than the others. There is one disadvantage in August-made cuttings well known to gardeners, which is, that the flowers of them come all of one colour, and that the same as that of the parent plant, whether it be blue or pink; but those made in February may be made to flower blue or pink at will. If the mother plant produced blue flowers in the former seasons, and you force it in February, cut off your cuttings as soon as they make three joints, and when they are rooted place them in a rich, light compost, say one-half leaf-mould or very rotten dung, and the rest of any good garden soil, they never fail to produce pink flowers; whereas, if taken from a pink flowering parent, and after rooting growing them in strong yellow loam, with about a sixth part of iron filings mixed with it instead of sand, nine out of ten of them will produce blue flowers. I have proved this over and over again, and have seen it in other hands, but I never could get an August cutting to differ in colour from that of the parent plant. The reason seems to be that the juices of the parent plant have already, by a season's growth, formed the substance, or the organized matter, as physiologists call it, out of which flowers are produced, so that no after treatment is able to counteract the effect; whereas cuttings separated from a plant at so early an age as when they only attain a few inches in length, and are then made to grow in iron rust and loam otherwise impregnated with iron, which is well known to favour the production of blue flowers in the hydrangea, the organized matter referred to is formed from juices impregnated with iron oxide, and so produce blue flowers. The intensity of the blue is, I believe, according to the perfect oxidation of the iron. Chalk-water never fails to counteract this effect of the oxide on the flowers, as we have often proved here, so that, to give the fairest chance to the experiment of getting blue hydrangeas, I would recommend the cuttings to be taken as early in the spring as possible, to strike or root them in *red* sand, to grow them in nothing but red loam and iron filings, according to the above proportions, and never to water them but with rain-water: but I am not sure whether rusty water from hot-water pipes would not add to the success of the experiment; at any rate this rusty water is not injurious to these hydrangeas. In some parts of the country the natural soil will produce blue hydrangeas, and in such places it is difficult to meet with pink ones; and what is singular enough, the

rhododendrons will flourish in such soil, although apparently devoid of all traces of vegetable matter. There is also a kind of peat earth which invariably turns the pink to a blue hydrangea, but all the peat that we have access to here does just the contrary. To have pink hydrangeas next summer, let us, therefore, make our cuttings now from pink parents; and, if we wish them blue, we must take the cuttings at this season from blue flowering plants, for we cannot alter the colour now.

GERANIUMS.—When I first came to treat of these plants in *THE COTTAGE GARDENER*, I made no hesitation in calling them by their old and original family name—geranium. The nature and importance of ancient family names and clanships formed the first prominent feature in my infant education, and that may account for my predilection for old names and ancient lineage. Knowing also that household words are to us what household gods were to the ancients, and that the one is as easily changed as the other, and, moreover, being then a stranger by name to the class of readers I was going to address, I concluded naturally enough that if I began by first unsettling the endearments and associations of family or household terms, by calling a geranium "pelargonium," a fuchsia "fuscia," and so on, I should be set down as a pedantic writer, and disturber of things as they are. Or who knows but some would say, "He is a revolutionist," and a first impression on that side of the question was then more likely to damage the reputation of the work than otherwise. So the pelargonium was called a geranium on that account; and I intended, at the end of the second vol., to give this explanation, and to adopt the more modern name in future, but the definition of the two families, or rather the two names, having been given at page 222, in answer to the Rev. P. S., I made up my mind to write pelargonium in future; and I would strong urge on young people on the fair side of thirty to accustom themselves to the more fashionable name *pelargonium*. The title of the new name, however, is not worth a straw: it was given by L'Heritier, a French botanist; and in his time the influence of Linnæus' mode of counting the stamens was in full force. It has since been proved, in many other instances as well as in the Geraniaceæ, that the number of stamens is a variable feature, and not to be relied on for generic distinctions. All the wild erodiums, pelargoniums, and geraniums, have ten stamens, and all of them have half that number of seeds. These stamens are defective from three to five in different species, that is, three to five out of the ten bear false anthers, or none at all. All the cultivated hybrid varieties of pelargoniums have only seven stamens as their greatest number, the abortive ones having given way under cultivation; but some have only five stamens, and of these some are fertile and some are not, so that the more the stamens of Geraniaceæ are studied with a view to family distinctions the less perceptible these distinctions appear. They are evidently of the same importance here as in the rhododendron, rhodora, and azalea, that is, of no importance at all. The next feature to distinguish these two so-called families is a regular and irregular corolla, or the petals being regular in the one and irregular in the other: this is a poor and very slender pretension to build a family name on. More than one-half of the wild pelargoniums have their petals almost, if not altogether, exactly of the same size, and of course regular; and among the erodiums, which is only a well marked section, many

have equal-sized petals, and many the contrary, so that the regularity of the petals as a generic distinction is obliged to be contravened by a string of exceptions. If we turn to the hard-beaked style when ripe, on which the fanciful names have been founded, we are in no better plight. *Pelargonium nuncius stork's bill*, from *pelargos*, a stork; *geranium* is derived from *geranos*, a crane, that is, crane's bill; and *erodium* from *erodios*, a heron, or heron's bill. Now, a good practical birdsman (ornithologist) no doubt could distinguish the bills or beaks of these birds from each other at a glance, for they say that if Professor Owen were shown even a tooth or a nail of a dilledum-dee he could tell what sort of a creature it was; but if you take a handful of the beaks of all the sections of *geraniums*, and shake them in a box, there is not a man in existence that will know them from each other at sight, and not one in a thousand with a magnifier and dissecting apparatus could tell their differences. Therefore, although I acquiesce in the name *pelargonium*, I protest against its validity; and I maintain that those who prefer the old name, *geranium*—and I am one of them—have the law of priority, and the best part of the laws of botanical nomenclature, on their side.

D. BEATON.

HOTHOUSE DEPARTMENT.

The greatness and wisdom of a designer are rendered most conspicuous when contrasted with the simplicity of the means by which striking results are accomplished. True grandeur and real simplicity are ever found in juxtaposition and harmony. Magnificent means and striking, dazzling, machinery for accomplishing a mere common result are evidences of poverty of intellect and weakness of perception. There is much sterling truth in the old adage, "*A good workman never stood still for want of a tool*," because, for many purposes, he would make for himself one on the spot, and perform the operation several times over while a thoughtless workman was hunting a neighbourhood to procure a suitable instrument. In gardening, these principles are constantly being developed. The most striking results are not always obtained where the means are the most commanding. True, the man who progresses under difficulties will be the most apt to excel when these obstructions are removed, provided the same diligence and unwearied application were manifested in the one case as in the other; and such are the men that, in a great many instances, now occupy the high places of the field. We say *provided*, because here is the point; for though many succeed best when all is favourable, in the case of many more there is a danger of taking things too easily when few obstacles exist—when the necessity for anxious watchfulness is diminished. Many men will at once, and almost without an effort, rise to the requisite position during the roughening gale that can scarcely be roused to action in calm weather and smooth sailing. Hence, I have sometimes witnessed better cucumbers, balsams, cockscombs, &c., produced by mechanics under a covering composed of slips of glass, oiled paper, and transparent calico, than when, owing to the improvement in their circumstances and the cheapness of glass, they had provided themselves with a neat commodious frame or pit. I have, at times, seen better grapes in a house that acted the part of an *onionium gatherrum*—plants being constantly kept in it for decoration—than when that house was given up to vines alone. I have seen a flower-garden with

its grouped beds as well filled when the manager was obliged to stow away his plants in different houses as best he could as when he had pits and conveniences expressly for the purpose. I know a worthy old gardener who makes a point of cutting cucumbers every month in the year, and was considered quite a don in his younger days, who caudally informed me he did not think he was more successful after all the improvements than he used to be with his dung hot-bed. Now, in all these cases, the seeming discrepancy is owing partly to the want of the wonted attention, and partly to the practice of looking at and admiring superior structures, imagining that they will do more for us than they possibly can, without a continuance of our care and energy.

Among all the advances made in gardening none are more conspicuous than those having reference to plant houses, and those structures for the growing of the tender and the forcing of the harder fruits, so as to bring them into use at desirable periods. In everything connected with these, simplicity and adaptation to the end in view, rather than mere external effect, should be attended to. This growing taste for flowers, fruit, and vegetables, out of season, is generally associated with great advancement in cultivation and refinement; but it should never be forgotten that such refinements may dwindle down into a mere matter of *fashion*, and as such possess but few humanising tendencies.

When the love of flowers became a passion under the latter consuls and the earlier emperors of Rome, luxury was predominant, vice was rampant, and the manly virtues of the early stern republicans gone. No chastened love of the beautiful in flowers could ever have entered the mind of the bloody Nero, but a mere desire of display, when for one supper the floral decorations cost *thirty thousand pounds*. Let us hope that in our case the refinement which the study of vegetation produces may never dwindle down into sentimental luxuriosity and weak effeminacy, but be upheld and rendered still more lustrous because blended with the pure in feeling and the christianly-moral in action.

HOTBEDS.—It is not our intention to give a history of the forcing of vegetation under the various phases which it presents, but we will at different times advert to the various methods of doing so, and the principles to be attended to in order to secure economy and success. As the first that generally engages the attention of the cottager and the amateur, and because success or failure therein generally acts as a stimulant or as a damper to further progress, we shall to-day say a few words upon the common hot-bed. It was long the only means for accelerating vegetation with any thing like certainty: walls, sloping banks, watering with warm water, removing into common sheds and houses at night, had all previously been used; cucumbers were grown in baskets and boxes, planted in earth over dung, much the same as in the time of Tiberius, being covered then at night with plates of *tale* instead of glass. Every improvement seems simple when once developed. Luxuries at the period referred to were at their height; but, though the Romans heated their dwellings by flues and pipes, there is no evidence to show that they ever thought of such means for the growth of plants. Besides the growing of cucumbers and melons, such hotbeds, whether made in a pit or with a wooden box set over them, are extremely useful for striking the cuttings of tender plants, forwarding them when struck, and also for growing tender annuals, for the decoration of the stove and

other houses. When properly attended to, plants will grow there with a luxuriance to be gained nowhere else. The making of such beds is a great thing with young beginners: many disappointments occur from not attending to a few simple matters. The most experienced are sometimes outwitted, because practice leads to too bold a confidence. The oldest farmers have been twitted with the question this season, as to *what they had lost* since they had cut their hay-ricks? Questions as provocative might be put to the blue-aproned fraternity when scudding along in a cold morning, with a hat-box under their arm, to obtain plants from a fortunate neighbour to replace those they had lost. Even at the distance of many years I can perfectly see a jolly rubicund face stretched out of a window as I passed on a similar errand, while the exclamation bounded in my ears and brought the warm blood into my cheeks, "What! steamed out, eh!" Well, this steam must be avoided by one of three ways: first, by turning your fermenting matter, such as dung and leaves, until it is perfectly sweet, that is, until all the sulphuretted hydrogen has gone; secondly, by covering your bed, either in pit or frame, with such a thickness of earth, or of manure nearly decomposed, that the heat will rise through it, and the deleterious steam be absorbed in its passage, so as not to reach the enclosed atmosphere; and thirdly, by having a bottom of slate in your pit, with a flue of slate or galvanised iron all round, so that, the fermenting matter being thrown underneath, the heat will rise through the bottom and all round the sides without the possibility of steam. By the last, no previous working of the manure will be necessary, but you merely obtain heat; by the first, there is more trouble but more satisfaction, as the plants are not only supplied with heat, but with the results of the slow decomposition of organised material. The second, when once you have gained a little experience, you will find for all, and especially for temporary purposes, the most economical for time, labour, and material. The turning of such a bed when the heat declines, and the addition of a few barrowfuls of hot fermenting material at the bottom, will have more effect than surrounding it with cart-loads in the shape of lining. "But how shall I know whether the atmosphere of my bed is *sweet* or not?" Lift up the light that covers it; if the drops of water condensed upon its bars are tinged with yellow or brown, trust the bed with nothing. If the drops are clear as the dew, put in it what you will, but even then leave a little air at the top, to be doubly safe. But how make or build the bed? We have rather put the cart before the horse, and we cannot now give minutiae, but just revolve in your mind the two following questions, and you will soon be beyond the reach of our instructions. What causes the heat in your heap of manure? Fermentation or decomposition. What ensures that decomposition? Warmth, water, air. Oxygen is not merely the life preserver, it is also the life destroyer, and the vulture that then gorges on its remains. Decompose your bed too much, and there will be nothing left for the oxygen of the air to burn, and coldness will ensue; build your bed too close or deep, and as the air cannot penetrate, fermentation and heat will be arrested; build it lightly of dryish material, and heat will also fail, because the air without moisture cannot carry on the decomposing process. Ponder these facts, and you will soon be able to make a bed that will retain for a long period its heating properties, by consolidating what is light, and lightening by means of bushwood, &c., what is dense; by working, in short, not merely

according to rule, but by suiting your operations to your circumstances.

ROBERT FISIL.

THE KITCHEN-GARDEN.

ASPARAGUS.—Attend to the instructions given in our last number, and keep the beds well cleared from weeds.

CABBAGES AND CAULIFLOWERS.—Do not neglect the last sowings of *cabbages*, so that an abundance of plants may be secured, ready for pricking out thickly on sloping banks, to stand through the winter. About the middle of this month another sowing of *cauliflower* may still be made. To afford a good supply for winter consumption, continue to plant out a succession, so that plenty of plants may be coming on in readiness for taking up throughout the months of October and November, to be stored away thickly together in temporarily made pits of turf, fern, heath, or furze, or to be hung up by their roots and stems, tied up in bunches, in temporary sheds: these sheds may very soon be knocked up by any handy labourer, either as a lean-to or span-roofed structure. We save all our asparagus-stalks, artichoke-stems, bean-stalks, and pea-haulm, and also procure furze, heath, fern, evergreen prunings, and, indeed, all kinds of refuse, in order to form these temporary pits, sheds, and shelters, when needed; they are also excellent places for storing the good healthy soils for cucumbers, melons, early carrots, and turnips, as well as for all kinds of potting purposes.

CELERY.—Attend to the directions given last week, and earth up carefully such as may be ready for the operation, but do not be in too much haste about applying the earth; and, we must repeat, take care also not to smother or injure the heart of the celery by applying too large a quantity.

ROUTINE WORK.—*Endive* should be again sown, and a succession of the earlier plants put out on borders, sloping banks, or quarters. Sow also, on a liberal scale, about the middle of the month, the best kinds of lettuce, such as the *Egyptian brown cos*, the *Bath*, and the *Hammersmith hardy cabbage lettuce*, for winter use. *Onions* should now be sown to stand the winter, which almost any variety will do if sown on a dry healthy spot: they should be sown pretty thickly. About the 12th instant is a good time for sowing full crops of the Flanders or prickly kinds of *spinach*: the soil should be well prepared, in a sheltered dry situation or a warm border, by the application of a good dressing of manure, and the seed should be sown in drills from one foot to eighteen inches apart. Collect materials together for making *mushroom beds* in succession; and, as the nights are now getting longer, and will soon become cold, a slight addition should be made to the linings of *cucumber* and *melon* pits and frames, by topping up with litter or short grass-mowings, &c.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 38.)

BRIGHT, and warm, and beautiful, as is the month of August—rich and glowing as are its flowers—we always feel that it is now *autumn*, and there is something that saddens us in that thought. Summer is so delightful to mind and body, the out-of-door life we lead is so agreeable, and the length of days so cheerful

and convenient, that, in spite of the pleasant fireside and family gatherings together of winter, we do not cordially hail its approach. The first bunch of fading leaves on the lime-trees always gives me a kind of mental overthrow for two or three minutes; and when the harvest is gathered in, it seems like the last boat quitting the departing ship. Yet, how good is every season in its turn! How mercifully are they adapted not only to our wants and necessities, but even to our comfort! Winter, with all its cold and discomfort, could we part with it? Would not the very sunshine weary us, if it lasted the whole year round? And where would our cottage gardens be if we dwelt in perpetual summer? There are no cottage gardens within the tropics, where winter is unknown. No, let us gratefully receive each wholesome change of season: some are less pleasing than others, but all are good; and even this very month displays to us one of God's tender provisions for our winter pleasures, to cheer and beautify the months in which flowers cease to bloom. Those beautiful, wonderful plants, the Everlastings, blossom in this and the two next months, and their flowers, in all their richness of shape and colour, become dry, and remain totally unaffected by decay. We do not, perhaps, sufficiently consider this remarkable quality, so very opposite to the nature of every other flower, and so singularly suited to the tastes and enjoyments of man. The winter nosegay may, thus, be always pleasing. These lively flowers placed among the leaves of evergreens, and interspersed with any other bud or blossom we may chance to meet with in our usually mild winters, will give a bright and summer-like air to the dark and cloudy days when fire and candle chiefly prevail. The everlastings have no English name; their botanical name is *Helicrysum*, from Greek words, meaning 'sun' and 'gold.' There are a great many varieties, and they are all natives of hot climates. The yellow variety, called "love everlasting," grows abundantly on some of the Asiatic mountains—on Carmel, and on Lebanon. The crimson flowering plant is particularly said to grow on the Mount of Olives, that sacred spot to which the heart of the Christian ever turns with deep emotion. How much may these flowers, then, tell us even of scriptural things! Of Carmel, so full of remembrances of the prophet Elijah; of Lebanon, whose forests supplied the timber for the first splendid temple, "the figure of the true;" and of "the mount called Olivet," which witnessed, and shall witness, scenes which no thoughts can image or pen describe, but which every eye shall see and every heart believe. The *helicrysum* also flourishes in the southern parts of Africa; the wavy-leaved species grows wild in New Holland; and one beautiful white variety, tipped with pink, is brought from Swan River. Our winter bouquet, therefore, speaks of many lands, and seems to unite us to many sons and daughters of our own dear British soil, tilling and toiling in those distant regions; some, perhaps, very dear to us; and all, as fellow countrymen, claiming an interest in our hearts. There is another genus of these everlasting flowers, called *Zeranthemum*: they are all natives of the south of Europe, and the different varieties have purple, white, or red flowers; only one is yellow. *Zeranthemum* retain their beauty for several years. The globe amaranth, too, may be called an everlasting; and has been, from the earliest ages, used as a funeral decoration. In France and Portugal, I have read, they still wreath it with other flowers, to adorn the tomb. This plant is a native of the island of Sumatra. There are a great variety

of amaranths cultivated in England; that which is called "love lies bleeding" has variegated leaves; it is a wild flower of China, Persia, and India. The Prince's Feather is an amaranth; its long floating plumes are very elegant, but I have scarcely ever seen it; it is in flower now, and so is the three-coloured amaranth, which is a very pretty variety; it also comes from the burning east, but adapts itself very socially to our cool climate, and blooms from June till September, which makes it a very useful addition to our borders.

During this month we may collect seeds from many plants. The safest way, in case a lady has no intention of altering or fresh carting her borders, is to dig or tread the seeds in immediately. Self-sown annuals are always the earliest and the hardiest, and most frequently the handsomest. I have known sweet peas planted late in the autumn, and they have thriven extremely well. If we could keep our borders quiet, it might be worth while to consider whether autumn-sowing would not be always the better way; but the spring raking, and weeding, and putting to rights, would probably disturb and uproot the tender young plants. A friend of mine always sows her seeds of every kind in large pots or boxes, filled with good soil; there the seedlings from them remain, in a suitable situation, till old enough to be pricked out. This *might* be done in autumn, and they would then be ready for spring planting when the beds and borders are all put into proper order—thereby avoiding the risk of destroying the seedlings. Perhaps some lady may, like myself, undertake this experiment; and if we are, by the blessing of God, spared till another spring, we may, perhaps, in our simplicity, throw a light upon this branch of cottage gardening, as seedlings raised in common soil always transplant with less injury than those taken from a hotbed, whose tender habits suffer from so complete a change. Seeds when gathered should be thoroughly dried in the sun, and then kept in brown paper bags in a very dry place. If we save our own seed, we are sure of its being good, which is not always the case when we buy it; and it is rather an amusing occupation to dry, and sift, and fold it up. It is a useful occupation too, as it reminds us of much by which we may profit. As we separate the broken seed-vessels and all the worthless particles that have mingled with the "good seed," a deep and awful parable unfolds itself; and, even by our own simple action of scattering "the chaff" to the winds or into the fire, we are reminded of the sure and dreadful fate of the ungodly. In how many ways wisdom "uttereth her voice!" how unweariedly "she crieth at the gates!"

HORTICULTURAL SOCIETY'S SHOW,

JULY 11TH.

WE now conclude our notices of this exhibition.

TALL CACTI were exhibited in plants of much less altitude than at the June show. First prize, Mr. Stanley, gardener to H. Berens, Esq. In this collection were several well-bloomed dwarf plants, particularly *Epiphyllum annectyanum* and *Cereus speciosus*. Second prize, to Mr. Green: he had several nice plants well-flowered; one, named *Epiphyllum greenii*, had immense flowers of the richest crimson hue.

COLLECTION OF FIFTEEN CAPE HEATHS.—First prize, to Mr. Mylam. Three or four years ago Mr. M. had scarcely a heath under his care, and now, by good management, his collection is brought to such a state

of perfection as to surpass the oldest competitors. His lot was composed of young healthy freely-grown plants; the most remarkable were, *Erica parmentieriana rosea*, 2 ft. high, 3 ft. through; this is one of the most beautiful heaths in cultivation. *E. saviolana*, a dense bush, covered with its rosy-coloured globe-shaped blossoms; *E. metuliflora bicolor*, an immense plant, 3½ ft. high, 3½ ft. through; *E. ampullacea rubra*, 2½ ft. by 2½ ft.; *E. inflata*, with its long tubular flowers in great beauty, 2½ ft. by 2½ ft. Second prize, to Mr. Smith, gardener to S. Quilter, Esq., of Norwood. This collection was very little inferior to the preceding, with the exception of two or three scarcely in bloom. The best we noticed were, *Erica massoni*, a grand specimen of a heath difficult to cultivate, 3½ ft. by 3½ ft.; *E. shannoniana*, also a splendid plant, 3 ft. by 3 ft.; the rare *E. obovata*, a low dense bush, 1 ft. high by 2 ft. through; and a beautiful new heath, *E. princeps templa*, with bright shining crimson blossoms.

COLLECTION OF NINE CAPE HEATHS.—1st prize, to Mr. Green. Like all Mr. Green's productions, his heaths were brought out in the best condition. We can only notice a few of the best:—*Erica massoni*, 2 feet by 2½ feet; *E. saviolana*, 1½ by 2 feet; *E. jasmimiflora alba*, 3 feet by 3 feet; *E. tricolor coronata*, 2 feet by 2½ feet. 2nd prize, to Mr. Taylor, gardener to I. Costar, Esq., Streatham. This was a well grown collection. The best were, *E. metuliflora bicolor*, 3½ by 3 feet; *E. Bergiana*, a large densely flowered plant; *E. elegans*, rather failing, but a fine plant; *E. Irbiana*, 3 feet by 3 feet.

FUCHSIAS.—Some fine specimens of culture were exhibited, and Mr. May, of Beckenham, obtained the first prize for a splendid plant of *Fuchsia coralina*, eight feet high, clothed with branches and flowers down to the pot. Mr. Gregory, nurseryman, of Cirencester, obtained a prize for a plant grafted with fifteen varieties. This was a new feature in the culture of this charming tribe, and certainly had a pleasing appearance.

FRUIT.—The Society offered three prizes for collections of dissimilar fruit, but only one was exhibited: it came from Mr. Fleming, gardener to the Duke of Sutherland, at Trentham. This collection the judges did not think was in the highest perfection, and so gave it the middle prize, £10. It consisted of three Queen and two Providence pines, four bunches of Black Hamburg grapes, one of Muscats, two dishes of peaches, and two melons. Upon the whole, it was a goodly lot of well grown fruit, and did credit to the exhibitor.

QUEEN PINES (private growers).—Mr. Jones, gardener to Sir John Guest, had the finest four fruit, varying in weight from 4 lbs. to 4 lbs. 12 oz.

PROVIDENCE PINES (private growers).—Mr. Fleming, a handsome and the largest fruit, 10 lbs. 4 oz. Mr. Jones sent a good *Jamaica pine*, weighing 3 lbs. 12 oz.

GRAPES.—The heaviest bunch was a West's St. Peter, 4 lbs. 7 oz. It came from Mr. Turnbull. Mr. Fleming showed a bunch of White Nice, 4 lbs. 2 oz.

PEACHES.—Mr. Snow, gardener to Earl de Grey, sent six of as fine fruit as we ever saw. Mr. Spencer had also fine dishes of Royal George and Noblesse peaches; Mr. Fleming, a dish of Noblesse; Mr. Turnbull, of Early Purple; Mr. Ferguson, of Aylesbury, of Royal George.

NECTARINES.—Mr. Parker sent Elruge, Violette Hative, and Tavernier kinds; Mr. Turnbull, Elruge; Mr. Munro, gardener to Mrs. Oddie, Red Roman.

MELONS.—The heaviest came from Mr. Munro, 7½ lbs., Hatfield's Green-flesh. Mr. Carson, gardener

to W. Farmer, Esq., 6 lbs., Oliver's hybrid. Best flavoured, Mr. Bundy, gardener to Lord Dynevor, Cuthill's Scarlet-flesh.

CHERRIES (in dishes, 1 lb. each).—Black Tartarian came from Mr. Snow, and very fine they were. Mr. Meyers had the Black Circassian nearly as fine. The same growers showed some splendid Elton and Big-garcan white cherries.

STRAWBERRIES were exhibited in the finest condition. British Queen and Eleanor, from Mr. Elphinstone; Deptford Pine and Old Pine, from Mr. Whiting.

TROPICAL FRUITS came from Mr. Ivison, of Syon House Gardens. They consisted of fruit of the nutmeg, gamboge, cloves, allspice, and vanilla.

Mr. Elliott had a plant bearing fruit, in a green state, of the *Musa cavendishii*.

There were many more specimens of fruit, but we have omitted all but the finest.

TO CORRESPONDENTS.

BEES (*A Subscriber*).—On no account "late in the autumn tie up your hives in canvas bags, and hang them up in a cellar till spring." They might survive such treatment, but in more instances would be ruined, as in a similar case mentioned at p. 264 of this volume.

PROTECTING FLOWERS (*Well-wisher*).—Your calceolarias, verbenas, penstemons, and geraniums, must be taken up from your borders and have the shelter of a dry frame, to be well protected from frost, during the winter. Cut down your fuchsias as soon as their leaves have suffered from the first frost, and heap over the roots a mound six or eight inches deep of coal ashes. You cannot do better than to plunge the pots within the frame in coal ashes. You may sow geranium, cineraria, and calceolaria seed, but you will see what we said at p. 236 of our last number. Your *Aucuba japonica*, if in the open ground, ought not to have naked stems; stop each of its shoots, and cover over the roots with mulch now, and always in summer; your soil must be too poor and dry for it.

ADVENTURERS (*A Friend Unknown*).—These help to enable us to increase our size without increasing our price.

STRAWBERRIES (*E. G., L.*).—These, raised from runners of 1847, may now be planted out in beds, and will produce fruit next year, if properly watered in dry weather this autumn.

SEA KALE (*Strid*).—Although your plants are nine years old, we think you may move them, and divide them so as to form a new plantation.

POTATOES (*Ibid*).—Julys and London Early Rounds will keep, well stored between layers of earth in a dry cold shed, through the winter until next spring.

CURRENTS, GOOSEBERRIES, AND RASPBERRIES (*Ibid*).—The first and second must not be planted nearer than five feet to each other; raspberries do very well three feet apart, and even two feet will not be too near if they are trained to a trellis.

NAME OF MOTHS (*A Young Entomologist*).—It is the Lackey moth (*Chilocampa neustria*), figured and described at p. 267 of our first volume.

SALVIA PATENS (*A Subscriber, Wigan-shire*).—This continues to shed its flower buds though you water it regularly.—Put some mulch over its roots, and give it liquid manure once a week.

FLOWERS FOR A SHADED GARDEN (*A Young Reader*).—At pp. 20 and 219 of the present volume, and in other places, if you consult the indexes of this and of our first volume, you will find the information you require. We cannot tell you "how to improve a poor soil" unless we know whether it is heavy or light, chalky, clayey, or sandy.

WIRE-WORMS (*Stephen Gilbert*).—You say that you read in some newspaper of some clergyman having found that soda ash destroys these destructive vermin. This has been often stated, and we should like to have a report of some accurate experiments upon the subject. Indefinite hearsay is not worthy of being depended upon.

FLEED WALL (*An East Lothian Subscriber*).—You ask us whether we think you can ripen the peach and apricot on a wall built as under, with a flue inside running along the bottom and returning along the middle of the wall; there are only two turns of the flue, which are nine inches by fifteen inches, but the wall is built of dry rubble work in the centre, between and above the flues, so that the heat may diffuse itself through the wall; the wall is to be of sandstone, ten feet high, two feet wide at bottom, and twenty inches at top; the border concreted, and several inches of drainage on the concrete, with a good slope to carry the water off freely and rapidly. Keeping in view the coldness of the climate, and allowing that the border will be kept very carefully mulched in dry weather, you also ask what depth should the border be, and how wide? The exposure will be a very little west of south.—Your wall and flue arrangement is good, only we would narrow or run the flues a little more towards the top—we should say to sixteen or eighteen inches.—Your flues are well placed and sufficient for the purpose; you will, of course, leave holes at distances for cleaning. Your concreting must have a good slope, and the rubble in contact with it should be quite porous and clean, in order to ensure a certain transit of water at the bottom. One point we beg you to secure, and that is a good elevation for the border: this we consider most essential to success. The surface

should be half its volume above the ordinary ground level. Half a yard will be the most eligible depth, and this should be composed in the main of maiden soil from any rest land, of a free, leamy character; using as much refuse material as can be got, but not a particle of manure; the latter will be wisely applied in the character of top dressing in dry periods. There is no necessity to make the border wider than seven feet on account of the trees. Pray provide a coping, projecting eight or ten inches, and some caevas or other covering. With these provisions, you may, we are assured, bid defiance to the frosts or storms of the *Lechins*.

BEEES (Apis, Southport).—A hive 11 inches square and nine inches deep will be large enough to hold, during the winter, all the bees that are now in it, and an additional small hive. You should take the honey from the small hive as soon as you see the couchs are sealed up (see p. 165 of this volume). If your bees are now fighting, they are probably killing the drones, a contest which usually makes them irritable.

EROSUS.—At p. 209, col. 2, "Finishing layers as soon as possible," in line 22 from top, should be added to line 22, as it relates to carnations and pinks. See p. 222, col. 2, line 39, for "five stamens;" read "five fertile anthers." But this is not invariable in the erodium. See what Mr. Beaton says to-day on the subject of its characters. At p. 212, col. 2, line 7 from top, for "below" read "above."

ROEHA FALCATA (Constant Subscriber).—If you are acquainted with the mode of managing the common caevas, the same treatment will suit the *Roeha falcata*, with this difference, that the latter is best increased from offsets, which are produced freely by every flowering plant. Mr. Beaton lately promised an article on the *crassulas*, to which *Roeha* is allied, and no doubt he will include it as a branch of the subject.

GERANIUM CUTTINGS (An Amateur).—These are best taken as soon after the plants flowering as they can be obtained. With regard to your reference to Dr. Lindley's "Theory of Horticulture," never point. It is best not to put most of anything else in the space between the two pots when double-potting is adopted. Anything of the sort so put induces the roots to get out between the two pots, and thus the remedy against scorching the roots is instrumental to their destruction.

PLANTS NEAR GLASS (Ibid).—Keeping plants "well up to the glass" does often prove detrimental to their vigour and growth in the height of summer. When Mr. Macintosh says that it is essential to have them as close as possible, he means, no doubt, during winter, shelves near the glass. At that time, from May to September, and are benefitted by being so placed during the other months of the year.

ROSES DONE FLOWERING (W. P. L.).—By all means cut off the flower stems of your roses of all kinds down to the first strong wood leaf. Perpetuals will flower all the stronger for it, and so will *Chin*. *Nisettes* and *Bourbons*. All roses of the Provence roses, though not benefitted particularly by this operation, will look all the neater for it, and for that alone it is worth while to do it.

SOILING POLYANTHUS AND GERANIUM SEED (One who has a nook in her Father's Garden).—Every family ought to have such nook cultivators. The best time, if you prefer to sow the *polyanthus* in the spring, about the month of April. You may either sow it in a warm border in light earth, and thinly covered with the same, or in a box of such a size as you may have seeds sufficient for. When the seedlings are up, and have grown so as to have four or five leaves, transplant them into a shady border, and there they may remain till they flower. *Geranium* seed may be sown now, provided you have a greenhouse to winter the plants in; if not, delay sowing till spring. The seedlings require a little heat to bring them up. Sow them in shallow pots in light soil, cover the seed thinly, and transplant the seedlings four in a pot four inches wide almost as soon as they come up. Keep them in those pots throughout winter, then transplant them again singly into three-inch pots, repotting them twice into larger pots, and then let them flower. If you sow in the spring, treat them in a similar manner as to the transplanting, but repot them in a box as you see the roots come through the earth to the sides of the pots.

CACTUS TURNED BROWN (A Novice).—The leaves are brown and drying, except about an inch of one, which remains green, and from this a young shoot has been thrown out. Cut down all to below the brown part, but do not try to serve the green one. Let the old one down produce others, and the plants will always look shabby unless you cut them down. Immediately they are out of bloom is the right time to prune all cacti.

TEA MIGNONETTE (Ibid).—Stop all the side shoots, as directed at p. 38, not preserve the leaves about untouched. **DISEASED CUCUMBERS (S.).**—Your bed seems to have been well prepared, with the exception that the soil, which, being of equal parts maiden loam, decayed leaves, and rotten manure, is too rich. The leaves of the plants turn yellow, their stems canker and bleed, but little fruit sets, and that which does set is small, and that has a taste that you enclosed, the blossom end of which is yellow, shrunk, and ulcerated. We believe all this mischief arises from the heat of the bed having declined, and too much water being given. You left off giving water as soon as you saw the plants were diseased, but that was too late—the mischief had been done. No three contingencies could occur at one time to cucumber plants more certain of producing disease than a rich stimulating soil, with too low a temperature and too much water.

STRIKING CUTTINGS IN PHIALS (W. P., Lexington).—The ends of the cuttings may not only touch the mould in the phials, and not merely be suspended in the water over it, but the mould may cover a large of the cutting. When the roots are an inch long, the cuttings may be removed. Water without mould will do.

ASPARAGUS BEDS (P. K. G.).—At page 112 of this volume, Mr. Barnes gives very full directions how the soil should be prepared in autumn for planting in the following spring, as your soil is heavy,

we recommend you to incorporate with it as much soot as you can procure, say a bushel to two square yards, besides the other manure. If you cannot obtain soot, use as much of fine coal ashes. The giant asparagus is the best variety.

BLACK CURRANT PLANTATION (Ibid).—Pare off the turf from the piece of grass land on which you intend to plant, put it in a heap and turn it frequently; it will make capital soil for potting and other purposes. Trench your ground all over in the autumn, and plant at the end of October. Decayed turf and leaf mould are capital manures for the kitchen-garden.

HABROTRAMUS PASCUALATUS (Ibid).—This, we think, will grow on your south wall, though in an exposed part of Kent, is specially if the border be well drained. Remember the great point is for the plant to ripen its wood well before the winter arrives.

HOT-BEDS (J. M., Pentonville).—You will find some directions about constructing these in our paper to-day. The best time for raising *geraniums* and *fuchsias* from cuttings is directly after leaves (see directions, vol. 1, p. 221).

Reddening your pots with ochre will not injure the plants in them.

BEDS (G. H.).—A leaf-bed is long, thin, and smaller than a blossom-bed. The former should be used in huddling. *Hot-bed* planting is fully described at pp. 58 and 248 of our first volume.

POLLTRY (C. M. A.).—Your communication is very acceptable. Will you oblige us with your real address, and for publication, but because we wish to communicate with you by letter.

MYLONS NOT SETTING (W. R.).—Take a male blossom, cut off the flower-leaf and petal, and rub its central parts or anthers gently on the central part or stigma of the female blossom to be set. Keep up the bottom heat of your bed.

HEATING SMALL GREENHOUSE (H. Savage).—One so small as eight feet long and five feet wide may have the first kept out of it as you propose, by a small tin can, but the rest of the gas, with a flow and return pipe, also of tin, and two inches in diameter, running round the house, or even along the front, near the floor. The jet of gas must burn entirely outside the house, for not only is its consumption of oxygen gas objectionable, but the gases it produces when burnt are highly injurious to plants. Answers to your other questions next week.

MUSHROOM SPAWN (S. Smith).—This is the name given to the kind of under-ground roots, having a white fibrous appearance, by which the mushroom is propagated. The other question is not within our province, but may be noticed some day in a treatise on pig-keeping.

MELONS DISEASED (A Village Clergyman).—Your case resembles that of the diseased cucumbers above replied to. The leaves, stalks, and stems rot—the ulcers beginning at the joints. You have too little heat, we think; and, if this be so, the sooner you get a flow and return pipe, you give, the more rapid will be the destruction. If we knew the daily temperature within the frame, and six inches below the surface of the soil, we could be more decisive in our opinion.

POTATOS FOR SEED (A Subscriber, Holston).—Let them remain in the ground until the stems are quite yellow, then take them up, and store them in a dry shed in alternate layers with earth. Greening them, by exposure to the sun and weather, is decidedly an unnatural injurious course to pursue.

GRAPE DROPPING IN A VINE (G. W. Wyatt).—The roots of your vines are probably too deep and too dry. Remove some of the soil all round from the stem to the distance of six feet; put some long dung or manure into the hole thus made; give a good soaking of water over the mulch—two or three bucketfuls; and then return on to the mulch only a part of the earth removed. Cut out all the diseased berries—they will decay and infect the others.

GRAPE SHANKING (Rev. W. D. Newton).—Considerable doubt is entertained as to the cause of this disease, but we are of opinion that it is occasioned in all instances from the want of root-action proportionate to the leaf-action. This usually arises from the roots being kept in a climate quite differing from that in which the leaves are kept. The roots of your vine are probably much colder and drier than the leaves, for you use "a good deal of water in the house." Try the same remedy as recommended in our answer next preceding this. Use your manure, fermenting it, and warm, and apply it freely. Remove the decayed grapes as fast as they appear, use less water in your house, and give air freely.

BROCCOLI BUTTERING (A. C. Clericus).—Your broccoli sown on the 19th of June, now running prematurely to heads, or *bolting*, as gardeners term it, it was occasioned by your growing the plants in the seed-bed under some unfavourable circumstances. You probably did not prick-out the seedlings, and kept them too dry—circumstances checking the formation of roots, and consequently promoting the formation of the flower, or seed-producing parts. This is a consequence influencing all vegetables; if you check the development of the roots you hasten that of the flowers.

NAME OF PLANT (E. G. R.).—Yours is *Leucosticte formosa*, a native of Nepal, and of the easiest culture; it can be multiplied either by cuttings, layers, or seeds. The first plant we had of it has given abundance of plants, sowing itself all over the plantation, and the plants, whether young or old, all stand our winters well at Winchester, and thrive under the drip of other trees. It is said to form a good underwood or shelter for game.

WEEKLY CALENDAR.

M D	W D	AUGUST 16--22, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Ago.	Clock bet. Sun.	Day of Year.
16	Th.	Greenfinch's song ceases.	Belladonna Lily.	49 a. 4	19 a. 7	2 31	28	4 2	298
17	F.	DS. OF KENT B. 1786. Barley cut.	Snaptadragon-Toad-fax	50	17 3	43	29	3 49	299
18	S.	Devil's-bit Scabious flowers.	African Marigold.	52	15	sets	30	3 37	300
19	Sun.	11 S. APT. TEIN. Common Tansy flowers.	Rough Cat's-tail grass	53	13	7 a 52	1	3 23	301
20	M.	Small Copper butterfly seen.	Autumn Dandelion.	55	11	8 19	2	3 10	232
21	Tu.	Sun's declin. 12° 5' N.	French Marigold.	57	9	8 43	3	2 55	233
22	W.		Meadow Cat's-tail grass.	58	7	9 8	4	2 41	234

The 16th of this month is *St. Roche's day*, and only requires notice because it was the day generally selected for the celebration of "harvest home." "Sound as St. Roche" is an old adage, alluding to the general belief in Catholic times that he was miraculously cured of the plague.

PHENOMENA OF THE SEASON.—Continuing our observations upon the modes adopted by their Creator for the diffusion of seeds, we may commence by observing that the all-wise care which this manifests for the preservation of the species is further demonstrated in the vastness of the number of seeds which most plants produce. Let any one count the number of seeds produced even by the pea, bean, radish, or any other cultivated vegetable, and he will be surprised to find that, if only ordinarily productive, not one of them yields less than from thirty to one hundred-fold. Yet many plants are still more extraordinarily productive. A single stalk of Indian corn (*Zea mays*) has borne at once 3000 grains; one elecampane plant (*Corisaria Helenium*) has yielded 3000 seeds; the common sunflower (*Helianthus annuus*), 4000; the poppy (*Papaver sumiferum*) 32,000; one capsule of tobacco (*Nicotiana glauca*), 1000; and one similar seed vessel of vanilla (*V. aromatica*), 15,000. The second provision we shall notice for the dispersion of seeds to a distance from their parent plant is the elastic force with which some are thrown out from their seed vessel. This is very conspicuous in the garden balsam (*Impatiens noli-me-tangere*), and both its names refer to its seed vessels being apparently impatient if touched. These seed vessels

appear entire like a berry, but when ripe, if touched, they split into five divisions or valves, curl back violently, and discharge the seed to a distance of several yards. The cones of the fir tribe contract during hot weather until they split with a loud crack, and throw out the seed with considerable force. If many thus explode at once the noise is considerable, so much so that Mr. Keith relates of two of his pupils that, having noticed it in a specimen of the stone pine (*Pinus pinea*), they thought it was supernaturally influenced until the cause of its explosions was explained. A less loud, yet joyous, crackling noise may be heard at this time of the year by any one walking among bushes of the common furze or whin (*Ulex Europæus*) on a hot sunny day. It is caused by the bursting open of its seed pods, and their consequent scattering the seed around. If the seed fell perpendicularly where it grew, scarcely one of the seedlings would escape suffocation among the thick growth of the mother-bush. The most remarkable noise attending this bursting of the ripe seed vessel occurs in the sand-bark tree (*Hura crepitans*): the explosion, it is said, equals in sound that made by the discharge of a small pistol. The contrivance for discharging the seed of the hart's-tongue fern (*Asplenium*) is very striking. The seed vessel or capsule is a hollow ball, nearly girted round by an elastic ring, which cuts the ball into halves, and jerks the seed from them to a distance. It would be vain to argue with any sceptic who refused to acknowledge in these demonstrations not only of their Great Artificer, but that "in wisdom He had made them all."

INSECTS.—We do not before remember to have seen the Froth insect, Cuckoo-spit, Froth-hopper, or Frog-hopper, (for by all these names it is popularly known,) so abundant as it was in the April and May of the present year. All its popular names refer either to the saucer-like froth in which it hurls itself; to its jumping powers when full grown, for it is closely allied to the grasshopper; or to its appearance at the same time as the cuckoo. It is the *Pettigonia spumaria* of some entomologists, and the *Cercopis*, *Cicada*, or *Aphrophora spumaria* of others. Its larva enveloped in its froth is especially prevalent upon the young shoots of the white-thorn or quick; but it also infests the stems of pinks, carnations, lilacs, and many other plants. If the froth be removed, and sometimes two small, pale green, aphid-like insects are detected. These are the larva or young of the Froth-fly, and appear like the figure marked c in the annexed woodcut; b representing the froth it emits. By means of its sharp rostrum or beak it extracts the sap of the plant, and voids it as an excrement in the frothy form which is its characteristic. About the end of July it sheds its skin, leaving it in the froth, and comes forth the perfect insect, as represented by the figure marked

	AUGUST	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
16	Highest	Cloudy.	Fine.	Stormy.	Fine.	Fine.	Fine.	Rain.	Showery.
	& lowest temp.	74°-58°	89°-57°	74°-55°	77°-57°	61°-48°	73°-49°	68°-61°	70°-51°
17		Cloudy.	Fine.	Fine.	Cloudy.	Firg.	Fine.	Cloudy.	Cloudy.
		75°-50°	89°-55°	80°-55°	69°-47°	69°-49°	70°-53°	71°-60°	68°-44°
18		Fine.	Stormy.	Fine.	Fine.	Fine.	Rain.	Rain.	Fine.
		76°-56°	92°-62°	84°-59°	69°-43°	71°-52°	73°-54°	85°-62°	78°-54°
19		Fine.	Fine.	Fine.	Fine.	Rain.	Showery.	Cloudy.	Fine.
		77°-47°	73°-61°	84°-61°	72°-60°	67°-49°	70°-52°	69°-55°	69°-42°
20		Fine.	Fine.	Fine.	Fine.	Cloudy.	Cloudy.	Cloudy.	Fine.
		80°-51°	73°-57°	72°-47°	78°-51°	66°-45°	64°-39°	72°-49°	71°-45°
21		Fine.	Fine.	Fine.	Showery.	Showery.	Rain.	Fine.	Rain.
		72°-48°	77°-55°	71°-49°	65°-55°	68°-39°	70°-54°	82°-54°	69°-51°
22		Rain.	Fine.	Rain.	Rain.	Fine.	Fine.	Showery.	Showery.
		66°-54°	83°-58°	63°-45°	69°-42°	72°-49°	67°-46°	68°-43°	65°-44°

So effectual are they for the purpose that, as Mr. Kirby states, after showing their mode of leaping, they will spring five or six feet at a time, being more than 250 times their own length, or "as if a man of ordinary height should be able to vault through the air to the distance of a quarter of a mile." It is not ascertained where the eggs of this insect are deposited, but probably on the stems of the plants on the shoots of which the larva feed. It appears, however, that they can travel after hatching for seedlings and plants raised from root-cuttings are often affected. We know of no better plan for destroying the insect than drawing the affected shoots between the fingers, and then dipping these into a bowl of water after each grasp. In the case of carnation stems and other flowers, requiring more tender treatment, all the froth may be taken from the insect by means of a piece of sponge, and itself then removed by a camel-hair brush.

a; which magnified, and in another attitude, is represented in our second woodcut. About the beginning of the present month the males and females may be found in pairs numerously on the plants they frequent. They are of a dirty white colour, thickly dotted and clothed with short hairs; head broad and bluntly triangular, with black lines down its centre and sides; eyes, one on each side, near the base of the head; rostrum long, bent underneath its body when not in use; antennae ending in a fine bristle; thorax and shield (scutellum), adjoining the back of the head, brownish. The wing cases are brown, mottled with ochre, with four whitish patches on the margin; the under wings are transparent and iridescent. The legs, six in number, short, but two hind-legs longest, and formed for leaping.



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In a former number (No. 40, p. 173) we promised to renew our observations upon DIGGING, and we now redeem our engagement, confining our observations to the best time for performing the operation, and the tool employed.

We all know that the soil must be dug whenever it is required for cropping, but as the operation may usually be performed without detriment a day earlier or a day later, if there be a reason for so doing, we may observe that usually garden soils are dug with most ease the day after a fall of rain—the surface is then most easily penetrated by the spade, and the earth holds better together, so that each spadeful may be cut out and turned over without spilling. In very dry weather, to secure these desirable objects, it is very advantageous to soak with water in the evening the plot of ground that is to be dug the morning following. Whilst soil is very wet, or when covered with snow, it should never be dug. In the former state it not only increases the labour by the greater weight that is to be lifted, and by encumbering or clogging the spade, but the soil cannot be properly broken fine, and after the occurrence of a day or two of fine dry weather sinks into irregularities, owing to the settling down being varied in proportion to the uncertainty of the soil's division: masses of mud always shrink to an extent proportionate to their wetness. Most gardeners object to digging while snow is upon the ground, and, as Dr. Lindley justly observes, the objection is not mere prejudice, for experience proves the bad result of the practice. The evil is owing to the great quantity of heat required to reduce ice or snow from the solid to the fluid state. A pound of snow newly fallen requires an equal weight of water, heated to 172° , to melt it, and then the dissolved mixture is only of the temperature of 32° . Ice requires the water to be a few degrees warmer, to produce the same result. When ice or snow is allowed to remain on the surface, the quantity of heat necessary to reduce it to a fluid state is obtained chiefly from the atmosphere; but when buried so that the atmospheric heat cannot act directly upon it, the thawing must be very slowly effected, by the abstraction of heat from the soil by which the frozen mass is surrounded. Instances have occurred of frozen soil not being completely thawed at midsummer; when so, the air, which fills the interstices of the soil, will be continually undergoing condensation as it comes in contact with the cold portions; and, accordingly, the latter will be in a very saturated condition even after they have become thawed, as well as so cold as to be highly prejudicial to the vegetation of the seed, or to the emission of roots by plants deposited in it.

With the tools employed for digging—the spade and the fork—mechanical philosophy has more to do than the gardener ever pauses to apply when purchasing them. All the philosophy of the wedge and

the lever offers light for our guidance in their construction. For instance, there is no law of mechanics more certain than that the sharper or more acute the angles of the wedge, the narrower will be its back or thickness, and the greater will be its penetrating power. Now, the blade of the spade is a wedge, and its power of penetrating the soil is diminished in proportion to its thickness; yet how pertinaciously do the makers of spades adhere to the old thick blade, instead of adopting that knife-like thinness, with a strong mid-rib, adopted in making spades for digging drains, clay, &c., in the east of England. Full one-third less power is expended in using this than in using the old thick-bladed spade. Another advantage of that thin-bladed tool is that a foot-rest, playing by means of a ring-socket at one end up or down the handle, and fixing firmly at any one spot by means of a wedge, enables the operator to stir the soil to any desired depth within the power of the spade and of himself.

Another circumstance worthy of consideration in digging is the adhesion of the soil to the blade of the spade. This adhesion, arising from the affinity or attraction between the metals (for the earths are most of them oxides, or metals combined with oxygen) is increased by the surface of the blade of the spade being also in the state of an oxide, or rusty. The affinity is not only then greater, causing them, in popular phraseology, “to stick together,” but the friction, owing to the roughness of the spade's surface, is greatly increased, and the expenditure of the workman's strength proportionate. It is for this reason, as much as for the sake of tidiness and preservation of the tools, that all judicious head-gardeners strictly enforce the keeping of the garden tools clean and bright.

When the soil is hard and difficult to penetrate, or, indeed, whenever it is sufficiently adhesive to permit its use, the fork should be employed in digging, for it is as effectual a tool for the purpose, and requires labour less nearly in the same proportion that the edges of its three small wedged blades bear to the one long continuous edge of the spade. A drawing and description of the best form of fork for this purpose is given at p. 289 of our first volume.

At the same place we notice “Lyndon's cast steel spade” as being the best generally purchaseable. Its blade is thinner and yet stronger than the spades usually produced by the wholesale manufacturers, and the form of its handle is far superior, giving, by being curved a little forward, better leverage than the straight handle of the spade of the east of England which we have recommended.

This leads us briefly to observe that as the thrusting of the blade of the spade into the soil is governed by all the mechanical laws of the wedge, so is the separating and raising the spadeful of earth from the bed equally controlled by the laws of ano-

ther mechanical power, the lever. The earth on the blade is the *weight* to be raised; the edge of the trench against the back of the blade is the *fulcrum*; and the hand upon the handle is the *power*. Now, the greater the distance between the power and the fulcrum the greater the ease with which the weight is raised. Hence the long-handled Irish spade loosens each spadeful of earth from the bed more readily than does the English spade, but it does not penetrate the soil so easily, because the weight of the body cannot be thrown upon the wedge so effectually. Lyndon's spade, by having its handle curved rather forward, renders less stooping necessary in the exercise of the leverage, and this is a considerable aid to the enduring power of the workman.

We recommend attention to these various points both to the manufacturer and the purchaser of the spade.

THE FRUIT-GARDEN.

THE APRICOT.—This luscious and extremely useful fruit will require rather similar attention at this period to the other trained trees, but as some trifling differences exist as to this mode of growth we had better handle the matter in detail.

In the first place, then, it is our opinion, formed after many years' close observation, that no tropical fruit cultivated in Britain, whether indoors or out, requires more sunlight than the apricot. The blossoms in spring are, perhaps, more apt to prove abortive through malformation than those of any of our cultivated fruits. Now, this is occasioned by influences over which we possess the most powerful means of control during the period of growth. We have before adverted to the tendency of the apricot to produce coarse foreright shoots, and pointed to the propriety of stopping them in due time; also of early training, whereby the shade of rambling leading shoots (which generally possess very large leaves) is avoided. We may now observe that a great amount of useless spray will continue to be produced subsequently, and that such must be kept under by finger-and-thumb-work. At this period, especially, all superfluous shoots, of whatever character, should be removed, or so far shortened back as that the embryo blossom spurs may receive the full benefit of sunlight, for every day is precious at this season.

Fruit which is ripening should be carefully watched, as the earwigs commit sad havoc amongst them, as also does the wood-louse. Pieces of soft calico may be stuck here and there in various parts of the trees; these will decoy the insects, and they should be examined daily. It is a very good plan to batter the wall well with water by the aid of the garden engine occasionally, and to watch for the insects beneath the trees, where they may be readily destroyed. Another plan has been suggested, that of drawing a band along the bottom of the wall of train-oil or tar; certainly, whilst such remained fresh, the wood-lice could not pass the barrier. If the weather has been dry, and the trees are heavily cropped, a watering of liquid-manure would be of considerable benefit; the fruit will be found much increased in size thereby.

PLUMS.—All trained plums should be well examined forthwith, in order to remove succulent or waste spray which may exist to the detriment of the

true blossom-buds. It may have been remarked by many of our readers that luxuriant plums, even if they blossom freely, do not "set" their blossom so well as weaker trees: indeed, the same may be said of many other fruits. Now this points at once to the fact that embryo blossom buds produced beneath the shade of gross shoots are not so perfect as those organized beneath the free influence of light. Well may people complain of the blossoms all dropping off, when, perhaps, their trees remain undressed through June and July. We say June and July, for if trained or other trees are well attended during those two months, there need be little anxiety about them for the rest of the summer. It is ridiculous to imagine that a winter pruning can effect everything requisite. Certainly, winter pruning is better than no pruning at all, and, indeed, some amount is requisite; but how soon do the efforts thus made to admit light to the superior branches become in part disannulled; and long before midsummer the hand of the pruner or dresser becomes requisite, and now the more to be despised, because, perhaps, the finger and thumb can accomplish all that is wanted.

Prevention is to be preferred to cure, and, if we may be permitted an old joke on this head, we would remind our readers of the countryman, who, after breaking all his gear in attempting to load an enormous oak-tree, flung his hat on the ground in a pet, exclaiming, "Dang the hogs that did not eat thee when thee was an acorn!" Let, therefore, the plums be looked over for the last time, removing gross robbers or pinching back spray produced since the former stoppings, training also all main shoots carefully down in their places. The *Golden Drop* plum will now be ripe or ripening, and we would remind those who possess a crop, that if gathered before it is dead ripe with great care, and placed in soft paper in a *very dry* room, they will keep for two or three weeks.

RASPBERRIES.—As soon as the crop is gathered, we advise that the old shoots which have borne the crop be cut away: this strengthens the suckers much. The latter may be looked over, and those which are too weak or too strong cut clear away. It may seem strange to some persons to talk of canes being too strong; such, however, may be the case, provided they branch sideways into axillary shoots: these should always be rejected if others can supply their place, as all the branchy part will prove barren in the ensuing year. In thinning them out care must be taken to reserve as many extra shoots or suckers as will be requisite for new plantations if necessary, or for repairing gaps in the old stock. This done, they may be tied to their stakes, but not too close; by leaving them somewhat loose, the sunlight will render their buds more mature. Any canes that have reached the height of six feet by the end of August may at that period have their growing points cut or pinched off: this will cause the buds below the operation to open very strong in the ensuing spring. Where raspberries are in parallel lines, a good chance occurs of introducing a winter crop of some kind of greens between the rows; and for this purpose we would recommend the coleworts, if at hand: for particulars concerning which see the allotment paper for August.

Double-bearing or Autumnal Raspberry.—This useful adjunct of the autumn dessert requires some attention at this period. By the time our paper reaches the readers of *THE COTTAGE GARDENER*, every shoot worth preserving, or, in other words, showing blossom-buds, or in bloom, will be manifest. Let,

therefore, every sucker which is barren be pulled away or cut down; the former mode is preferable when it can be accomplished; this, however, is not always the case, for the suckers sometimes form merely a portion of the old stool, not a colonised fragment. However, away they must come, and well-dressed stools must only possess workers at this period; like the bees, they must cast out their drones when the day arrives which nature has marked out. The rest of the culture will now be resolved into some nice training of those shoots which are blossoming, and our readers will readily imagine, without our advice, that the chief maxim is to obtain as much unobstructed sunlight as possible on the reserved suckers, now about swelling off their autumnal offering.

Wasps.—We must now point to the amount of caution necessary with this insidious enemy of garden produce; so great are the depredations, and, as a consequence, loss, occasioned by this marauder, that we think, like the rat case, legislative enactments for their suppression, could they be brought to bear on the community at large, would not be altogether misplaced. To those, then, who would reap the benefit of their labours, and those who are determined in spite of a little expense to endeavour to enjoy the fruits of the current year, together with a fair prospective view for years to come, we would say take every nest within your reach, and endeavour to convert influential neighbours to the same doctrine. Also, when very choice things, such as grapes, &c., are in question, purchase a little gauze, thin canvas, or other economical and durable material, and invest your choice fruit with it betimes.

Pity it is, in our way of thinking, the public are not more alive to the destruction of these hope-destroying insects: surely every nest destroyed has a tendency to reduce their numbers in future seasons. "Little strokes fell great oaks;" or, in other words, "effect is bound to follow cause." This character of tenure seems, in the present condition of affairs, stamped on all sublimary things. R. ERRINGTON.

THE FLOWER-GARDEN.

NOTES OF A JOURNEY IN HERTFORDSHIRE (Continued).

We left the pleasant village of Hoddesden behind us, continuing our route on a road formed some seventeen or eighteen hundred years ago by the Romans, and an easy and excellent road it is to this day. In passing on, the wide-spreading hedges attracted our attention; beautiful though they are, they are a costly ornament to the country: in some very bad cases these hedges were as much as three yards wide, and even then were but an indifferent protection to keep the cattle out of the turnip and corn fields. Certainly a revolution is wanted here. These wide-spreading and land-devouring hedges ought to be rooted up, the banks levelled, single rows of quickwood planted, and protected for three or four years by double rails on each side, kept clean, neatly clipped or slashed with a hand-bill annually, and as often manured and slightly dug for two feet on each side. Let all this be done, and the country will gain some hundreds of acres, and a proportionate increase of bushels of corn, soon repaying the labour and cost. We detailed the method of planting and managing hedges at p. 77 of our first volume.

We soon, whilst descending a gentle declivity, observed before us the ancient market town of Ware, rendered famous by the author of "John Gilpin." Our road lay through the town, which is clean, neat, and healthy. It is the seat of a considerable trade in malt, the country around producing, it is said, some of the finest barley of England. Turning to the left as soon as we got clear of the town, the road began to rise; on one side a steep bank circumscribed our view, but as soon as we arrived at the summit of the hill we came in sight of the object of our journey—

THE POLES, the seat of R. Hanbury, Esq. The road we had taken led to the garden entrance, near to which is the gardener's dwelling-house, a new and truly comfortable residence. We were fortunate enough to find the gardener at home in the garden. The smile of his face and the hearty shake of his hand assured us that he was right glad to see us. We were soon ready for the treat to the mind we expected, and when we mention that our worthy entertainer is one (and not the least in any sense of the word) of the "Barnes's," whose successful doings in horticulture have been so famous for a number of years, our readers, at least that portion of them who have had the opportunity of reading the gardening periodicals, will expect to read of this place news that will add to the well-earned celebrity of our good friend, Mr. W. Barnes.

In the first place we must remark that the whole of the gardens, hothouses, greenhouse, conservatory, flower and kitchen garden, are entirely new, of considerable extent, and the whole laid out and built under the superintendence of the present gardener in little more than three years. We understand the designs for the improvements were furnished by Mr. Glendinning, of the Chiswick nursery, and in our opinion do great credit to him. The mansion is placed happily on the summit of a gentle elevation, having a good prospect of the park in front. The park is furnished with some fine groups of noble oaks, "not set too thick, but scattered here and there." The south front has a broad terrace of walk, lawn, and flower bed, extending beyond the house to the east, in front of the range of plant houses. Close to the house and adjoining one of the principal rooms is a neat moderate sized conservatory: this is kept constantly furnished with plants in flower from the other houses; it was very gay on this occasion with gloxinias, achemenes, calceolarias, and other summer flowering plants. In front of this conservatory is a French parterre with beds of flowers in masses: here we saw for the first time a bed of that famous plant, *Plumbago Lappaceae*. Now that we have seen it here under favourable circumstances and undoubted good management, our readers will, no doubt, expect us to give our opinion as to its fitness for bedding purposes. On the one hand we cannot positively say that it is a good plant for that purpose, neither, on the other hand, can we say that it is worthless. Several of the plants were in flower, but these evidently had been in a blooming state when they were planted; others had not as yet flowered, so that the time to determine the full merits of the plant as a bedding-out one had not arrived. We may venture to say there was room to hope it would answer for that purpose. The verbenas, lobelias, scarlet geraniums, salvias, &c., &c., were in full flower and well covered with bloom, making the garden rich in colours of every hue. The division from the park is effected by a parapet wall; four or five feet from it is a broad straight

terrace walk, on each side of which is a row of standard roses: this walk leads to the entrance of the plant-houses; they are all span roofed, of moderate height, and glazed with large squares of sheet glass; they form three sides of a quadrangle, or square; the one to the east is devoted to stove plants, that to the west to greenhouse plants, and the other to the orchidæ. In the stove there are some fine promising specimens of the best kinds of plants requiring that heat. The new and splendid *Ixora hydrangeiformis* was in fine flower with several heads of its orange-scarlet blossoms: it is a fine species when fully expanded. The *Eschynanthuses* were also finely in bloom, as were the *Allanandas*, but our space forbids us to describe a tithe of the fine plants we saw; sufficient it is to say that they all showed the care and untiring energy of the master-mind that has the charge of them. From the stove we entered the orchid house: here, among many others, several plants of that beautiful species the *Phalenopsis amabilis*, and the more rare *P. grandiflora*, were in bloom. The noble plant of *Cattleya labiata*, for which this collection is famous, we found thriving wonderfully, and showing at least ten spikes of its magnificent flowers. All the orchids were growing luxuriantly. We could with pleasure have spent hours among them had time permitted, for if there is one class of flowers that we admire more than any other it is these singularly interesting plants, the orchidæ. We reluctantly left them and entered the greenhouse, which we found well stocked with the best plants of the day, all in perfect health, and promising to make excellent exhibiting specimens, if they are ever used for that purpose. The space between the houses is very properly laid out as a rose garden, with flowers intermixed. The roses having been planted so lately, though perfectly healthy, require time to acquire their full beauty. We left the plant-houses by a winding walk which brought us to the kitchen-garden, yet in its infancy. The vegetables, from the great quantity of fresh earth, lime, and manure brought into it, were, notwithstanding the dry weather, in excellent health. The wall trees, considering the short time they have been planted, had just that healthy growth upon them which betokens a long life in prospect. This garden is of considerable extent. From the hurried glance we had of it, we think it must be at least three acres within the walls. We were much pleased with the methods Mr. Barnes had adopted to protect his strawberries from the drought and from the birds. Clean long wheat straw was laid on each side of the rows; this answered two purposes, it not only kept them moist at the root, but kept the fruit clean. To protect them from the birds, long narrow nets made for the purpose were stretched along the rows; and the quantity of fine clean fruit we could see through the netting showed that the labour had been well rewarded. These methods of protecting this fruit are worthy the particular attention of our readers.

After observing these points, our attention was drawn to the *muleking* applied to the roots of the wall trees. One good watering, with the borders so mulched with short litter, we were assured did more good than ten without it. The vine borders were treated in a similar manner. Our readers must remember that the rains had not fallen when we were at this place. The vineries, three in number, occupy the centre of the south wall. We found the vines making excellent strong short-jointed wood, with fine foliage. The houses were glazed with large squares of sheet glass, and here, as faithful chroniclers, we

must confess the fact that the leaves were sadly scorched by the sun shining through those large squares. Consequently, we soon found our good friend was not in favour of this kind of glass for glazing vineries. Remembering what we had observed at Hoddessden, as detailed in our last number, we inquired the weight of the glass here. Though not so heavy as we understood that is at the house of Mr. Warner, which did not burn the leaves, yet it was of such good quality as might reasonably have been expected not to injure the tenderest leaf; yet it has done so to a great extent, and, of course, may be expected to injure the crops of fruit next season. Shade, Mr. Barnes objects to, for, as he says, if large squares and clear glass are necessary to produce the best fruit, shading takes away that desirable effect. We hope he will let us know next season how his vines work, and whether he finds the shade (for he is obliged to use it) does any harm. Behind the forcing houses for fruit there are some narrow smaller ones used to force flowers for supplying the conservatory, and to nurse young stove plants for the hot-house below. This finished our inspection of this fine place. Many things we observed—such as a collection of young trees of the pine tribe, some new plantations, the carriage road, and entrance lodges—we are obliged to omit. Our next visit was to the gardens at Broxbourne Bury, the account of which we are obliged to defer to our next number.

FLORISTS' FLOWERS.—Look over the last three or four numbers, and follow the directions there given. We have no room for more this week.

EVERGREENS.—During moist weather our amateur and cottage friends may amuse themselves profitably by planting a few cuttings of evergreen shrubs, such as aucubas, box, bay, the common and Portugal laurels, laurustinus, variegated hollies, &c. If the cuttings are put in now they will either root before winter, or form a callus, that is will heal over with a substance so named, exuding from the edges of the wound, and from which the roots will push forth early in spring. Success is more certain in this month than any other. Prepare the ground for them on the north side of a low wall, or well clipped hedge, digging and breaking it thoroughly. When this is finished, prepare the cuttings, choosing such shoots as have just done growing, and have become of a firm woody texture; too young wood is apt to damp off. Cut the shoots into lengths: the strong ones to three joints, the weaker ones to four or five; prune off the lower leaves close to the stem, and cut the lower end of the cutting clean across, close to the lowest bud. Make no more cuttings at one time than you are able to put in the same hour, as too long exposure to the air will injure them. Plant them pretty thickly in rows across the piece of prepared ground, pressing the earth firmly to them; so proceed till you have put in all you wish to increase.

T. APPELEY.

GREENHOUSE AND WINDOW GARDENING.

CRASSULAS.—I have said that we make flower-beds of these in the gardens at Shirubland Park, but before I say how we manage them for this purpose I may as well give a sketch of their natural history, and then the treatment of them, or the rationale of our artificial mode of managing them, will be easier understood or accounted for by the young beginner; and it is by imitating, as far as our country enables us, the natural conditions under which these beau-

tiful succulents exist in our Cape colony, that gardeners have succeeded in bringing their crassulas to that extraordinary state of beauty for which they are now so conspicuous at our metropolitan exhibitions, particularly those in July. Messrs. Frasers, nurserymen at the Lee Bridge nursery, near London, who are so celebrated for winning the best prizes at these exhibitions, were the first to shew to us in England what could be done with these crassulas by superior cultivation. Old as I was when they exhibited their first crassulas a few years since, I was so struck with them that I could not get the first impression of them out of my head for many days, and I even dreamed of them; and yet an intimate friend, well versed in these things, told me since that far superior single heads of bloom of the crassula are yearly brought to the flower-markets of Paris. Now, there is a principle involved here which I ought to have explained last week when writing on the autumn hydrangea cuttings, for I always find that when a principle, however simple in itself, that is new to me is well explained, that I learn more from a few sentences than from a long disquisition of our ordinary craft prescriptions. Almost all plants, except annuals, lay by a store of nourishing matter over and above what is needed for their own consumption in a given season, and even annuals are not exempt from this law, which appears almost universal in the vegetable kingdom, for they, at least some of them, require a certain period of growth to store up matter for the production of their fruit or seeds. Gardeners take advantage of this law, and in the case of many plants which, like our crassula, make a growth one season on which the flowers are produced in the following season, they allow the season's growth to be nearly completed before they take the cuttings from the mother plant, and by that time the extra matter necessary to produce large handsome flowers is already stored up in the vessels of the shoots; and by taking in August good stout cuttings of such plants, as cacti, hydrangeas, crassulas, and many other plants that will root quickly, it is found in practice that all the difference it makes to these shoots is that they can produce their flowers better with the assistance of their own new roots than they would if left on the parent plant, from which all the flowering shoots have to draw their supply. Thence it is that little bits of these plants can be made to bloom in very small pots—the pot and the plant being out of all proportion to the size of the flower.

But to return to the crassula in their native home. At the Cape of Good Hope they form but a section of an immense number of different plants which nature has provided with thick, soft stems and leaves, in which during the rainy season they store up a large quantity of undigested food, which they elaborate at their leisure for many months afterwards under the scorching rays of a vertical sun. The cactus families represent this form of vegetation in the new world, and what a striking analogy all of them present to those animals which chew the cud! In a few weeks or months they swallow food enough to serve them the year round; and, for the better preservation of this food, we are told by physiologists that these succulent plants are differently constituted from other plants in their breathing and perspiring organs, for all plants are known to perform functions very near akin to our modes of breathing and perspiring. These succulents principally grow on dry hot rocks or plains where the more common forms of vegetation could not exist; they may be considered as formed for the express purpose of supplying the wild ani-

mals in regions where neither other food nor water can be procured. To enable them to bear up against such difficulties, succulent plants are chiefly furnished with an unusually tough skin; and, to prevent their parting with the scanty moisture which they collect from the burning soil, the pores by which they perspire are very few and imperfectly formed, so that the full ardour of the brightest sun does not incommode them much, but is even essential to bring about their full maturity. These natural facts point out to us the necessary steps in their successful cultivation.

We have seen that perspiration takes place very slowly through their tough skin, therefore it is but rational that they should be sparingly watered at all times, and not at all during winter, unless it is a severe one, when fire-heat may render it necessary; and even then succulents of every kind should be very carefully watered, and placed as near the glass as possible, for in their native place they are subject to intense light during their inactivity, at which time the food they obtained during the periodical rains is slowly digested, forming those secretions which enable them to flower so gorgeously. Here, when we increase them for flower-beds, we make short cuttings, about the end of August or in September, of the tops of the young shoots which have not flowered, and, after the cuttings are rooted, they are placed singly into small pots, and grown till the end of October, when the pots are filled with roots. From this time to the end of February they are kept in a cool greenhouse on a shelf close to the glass, and seldom receive more than two or three waterings during the whole winter. As soon as they begin to move in the spring they are stopped at about three or four inches from the pot, and a few of the top leaves are taken off to facilitate the growth of new shoots. As soon as these are well formed they are thinned, so as to leave but from three to five or six shoots on each plant, according to its strength; and, as soon as the shoots are two inches long, the plants are shifted into pots a size or two larger, in a mixture of yellow loam and pounded bricks, well drained. I put little stress on the kind of soil used for them, only this mixture retains moisture longer than any other, therefore we escape the danger from frequent waterings.

In large places gardeners experience more mishaps from injudicious watering than from all other causes of failure put together, as in hot dry weather inexperienced hands are obliged to be entrusted with a share of the "watering" to help on the work; but, where few plants are kept, I see no reason why crassulas should not be grown in as rich a soil as the pelargoniums, if an effectual provision is made for keeping it open by the use of charcoal, lime rubbish, or the usual pounded crocks.

After the spring potting we indulge these crassulas with a little more than greenhouse-heat, by placing them for two or three weeks in a peach-house or vinery, and this could be imitated in a close pit, for we like to have them in full vigour by the middle of May, because the earlier in the summer they complete their annual growth the more time and sun they have to finish their ripening process, thus coming as near to their natural condition as our climate will allow. About midsummer or before the beginning of July their growth is finished, and they are then turned out of doors, and plunged in sand close to the front wall of any of the hothouses, where the heat in the dog days often ranges from 80° to 100°, and where little rain can get at them, the spouting which receives the water from the roof passing over their heads. The sand in which they are plunged gets

very hot also, and by watering it occasionally between the pots the roots are kept sufficiently moist without any water being given on the soil in the pots. This treatment is more uniform and more natural to them than any mode of pit or greenhouse culture.

On the first indication of frost the crassulas are removed into shallow cold pits, where the lights can be drawn off them every mild day till the end of November, when we move them to a dry shelf in the greenhouse; but they could be wintered safe enough in a dry pit from which the frost could be kept.

During the following spring they are kept as cool as possible, being among the first set of greenhouse plants that are removed into cold pits when plants begin to grow in the spring, and they are about the last plants that are bedded out at the end of May; and they make the most brilliant bed for the whole season, flowering for six weeks to two months, according to the situation of the beds. We prefer the tall dark scarlet, or old *C. coccinea*, for beds, but there are three or four distinct sorts that do equally well in pots.

It will thus be seen that we must grow them one whole year and flower them the next, so that a constant succession is propagated every autumn; and the difference in the main treatment of our pot specimens is really very little different from the above, only that when we want them to be large plants we do not let them flower till they are three years old, and thus we accomplish by cutting them back any time in the summer when they are full grown; and, of course, such very succulent plants must be thoroughly dried before these are cut in. With ordinary attention these large pot plants may be kept in a healthy state many years; but here, where we plant them in beds, there are some rivals to the old plants spring up every year when the beds are emptied. All this is on a regular system.

Let us now turn to the other side of the question, and we may easily trace the cause why these splendid old plants have been so much neglected in cottage gardening, for when they are well managed they are infinitely superior to the best cactus that ever was grown. The reason must be that from not knowing how to manage them, as to pruning, they soon get unsightly; but a few simple rules may teach any one who is fond of plants how to prune and manage them as easily as a cactus, and the easiest way to do this is to take examples from every-day experience. Let us suppose, for instance, that you have a nice crassula now going out of flower, with one or three branches only, and these carrying a flower-head each. If you understood me in the former part of this letter, I shall now have no difficulty in making you comprehend that no gardener in the world could make such a crassula flower next year, because its growing season is now over, and there is no shoot of this season's growth left to flower next year. Those shoots that are now going out of flower were made last year, and only a little lengthening took place last May to enable the flower-heads to appear. It is, then, plain enough that we must grow shoots one year to flower next season, and with small plants that is the best and easiest way, just as is done with young oleanders.

But it often happens that plants with only two shoots will produce but one head of bloom, and then the second shoot will be sure to flower the year after, and thus a plant may be made to flower every year. Again, if this plant with the two shoots offers to flower on both instead of one, and you wish the plant to

flower every year, you must forego the pleasure of having both shoots to flower the first season. In that case, as soon as you can perceive the flower-buds in the spring, you must cut down one of the two shoots and let the other one flower. The lower down the shoot is cut the better. If there is only an inch or two of it left, it is sure to produce three times the number of young shoots that will be necessary to retain. If you select three of the best placed, these will be enough for a plant so young, therefore instead of two flower-heads we have only one of them, and three others coming up to flower next season. As soon as the single truss of flowers begins to fade, say about this time, this flowering shoot must be cut down close likewise, and from it succession shoots will be obtained, so that in a large old specimen there are many flowering shoots and succession ones growing on at the same time; and, as soon as the plants are done flowering, the shoots which have borne the flowers are cut back to different lengths according to the size or shape the plant is intended to be grown.

Some growers do not cut their plants back after flowering, as above directed, but leave them till the following spring, and then cut down those shoots that flowered last summer. This is not so good a plan, for their plants are too much crowded with shoots through the winter, when every encouragement ought to be given them as to light and air. But, after all, the simplest way for ordinary people is to grow their crassulas, of all sizes, after the same manner as the young oleanders; that is, to flower them only every other season, and in that case they need only to cut down half their stock every spring. Indeed, more than half our pot crassulas at Shrubland Park and all our young oleanders are so treated, and they answer very well.

A word or two respecting old stunted or straggling plants of these crassulas, and then I will have done. Whatever number of branches or shoots such plants may have at present, I would advise the whole to be cut down now, or as soon as they have done flowering, to within an inch of where they branched out from the main stem. Before doing this let the soil in the pots get quite dry, to prevent the plants bleeding; then water the pots, and place them in some warm place to encourage new growth. As soon as the young shoots are an inch long shake all the old soil from the roots, and put them into small pots in a good compost. If the plants are long-legged, the lower half of the old roots may be cut off, and then so much of the stem may be buried in the new soil, which is not at all injurious to these plants, but it will be found to benefit them much, as fresh vigorous roots will issue from the buried part of the stem immediately; and this cutting of the roots or ball may be repeated at each succeeding shift until the stem is at last reduced to two or three inches from where the branches begin to fork. By the time these plants have filled the new pots with fresh roots, and the young shoots are two or three inches long, I would dry them off and let them remain dormant through the next winter. They will not flower next summer, but ought to make a good growth to bloom the following season. As soon as they begin growing next spring, if they are thin of shoots, the young tops made this autumn may be cut in one-half their length, when double or even treble the number may be obtained; and, as soon as the whole are in motion again, the plants ought to get a good shift.

Every morsel of the old shoots cut off now will make cuttings, but the best cuttings are obtained from the top ends of young vigorous shoots; they

will make roots either in heat or cold and throughout their whole existence: any mode of forcing is very disagreeable to them. Abundance of air, strong sunlight, and a liberal supply of water during two months while they are in active growth, very little water for the rest of the summer and autumn, and hardly any through winter, seem to be the most natural way of treating them.

Crassula is an old legitimate name given to these plants by Linnaeus, and is taken from the diminutive of *crassus*—thick or succulent. But the late Mr. Haworth, an English writer on succulent plants, changed this name to *Kalosanthes*, and applied it to the more showy plants of the genus—a most unwarrantable and uncalled for step, which no subsequent writer should have countenanced for a moment. The public, and especially public writers, should set their pens and shut their pages against this intermeddling with established names and rules on the part of crotchety spirits who are only confusers of the paths of natural history. However, instead of opposing such innovations, compilers, authors, editors, and reviewers, seem rather to delight in promoting this pseudo-scientific multiplication of names, not considering how they encumber the student and expose their weak sides to the gaze of the next generation, who cannot fail to perceive that the abettors of this public nuisance knew as much about the natural divisions and subdivisions of genera as I do about the sources of the Nile. *Kalosanthes* means a beautiful flower, and is as applicable to a pansy or a tulip as to our scarlet *crassula*.

Many years since, when I had charge of a large collection of succulents, I tested the value of some of Mr. Haworth's fanciful names by cross-breeding, and found them wanting. I am quite satisfied *Kalosanthes* will not stand the true test of the pollen-bag. Even the classical family of *Narcissus*, on the division of which Mr. Haworth staked his future fame as a reformer of natural history, Dr. Herbert, with a few applications of the anthers, proved to be baseless, and that not one of the new names was tenable. If we can prove that either a new plant or a new animal had been improperly described from an ill-preserved dead specimen, and that, in consequence, it had been referred to a wrong part of a system or family, then is it only right and proper to change its place, or even its name, when the mistake is most manifest, but that is different altogether from a person rising up to-morrow to convince the world that we have been all wrong about our roses, for instance, and that instead of one family they consist of ten families. Of course he would give them ten family names to put us right, but would they not be all roses still?

D. BEATON.

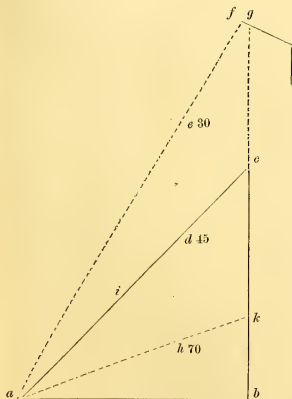
HOTHOUSE DEPARTMENT.

VINES.—There is so much of the poetical olden-time-reminding, sunny eastern-clime inspiring, and civilization and social-progress-marking, connected with the culture of the luscious grape, that many of the subscribers to this periodical would consider themselves enduring something like a deprivation if, in some favourite spot, they could not sit under their own vine, there to give fancy free roamings amid the events and circumstances with which its history is associated, or indulge in splendid, dreamy, airy castle building, which, although the practice may be sneered at by the stern utilitarians, is yet capable of conferring a measure of enjoyment, while

it interferes with the rights and properties of none whatever. If, for the possession of such a plant, or, where that is not permitted, the mere pleasure of beholding it, there should be feelings approaching the precincts of enthusiasm, there are abundance of apologies, though even one is not required, as, without possessing a fair dash of enthusiasm in his subject, no man ever accomplished much of the great and good in any sphere of life. From having no copious account of antediluvian times, we may fancy, though we cannot detail, *how* the bowers of Eden were festooned with clusters of the vine; but we do know with certainty that, after the most wondrous event connected with man's era of the earth's existence, not the first act of our great and good post-diluvian progenitor—for that was one of gratitude and homage to the Great Being who had saved him and his amid the deluge of waters—but the second act recorded, has reference to his becoming a husbandman, and planting a vineyard. From that day to this—whether for making into wine that “cheereth the heart,” (and the propriety of doing which it is not our province here to determine,) or for placing at the festive board, and there in its tempting clusters forming a richer crowning termination of the feast than even the vaunted apples of the ancient Romans—the vine has ever been an object of more than classic interest; whether manning the sides of the peasant's cottage, and by its appearance affording an inlet to the character of its inmates; occupying a part of the amateur's solitary glass-house, not the less beautiful when blended and contrasted with other plants of all habits, scents, and tints; or when asserting for itself alone a proud position in the forcing departments of the high in rank and rich in wealth. Leaving the treatment of the vine out-of-doors in the best possible hands, we shall at times have something to say about its management within; but even here I am much more troubled than my friend Mr. Beaton (whose hints shall be duly attended to), for, in addition to not knowing where or how to end, I can scarcely divine where to begin. I would join him in advising all new houses and pits to be set about without delay, that they may be well seasoned before winter, as new damp houses exert upon many plants a similar influence to that which they exercise upon their cultivators. And here, though a matter frequently little thought of, it is of importance to decide in all cases, and more especially in vineries and other forcing houses, what period you would wish the fruit to ripen, as at that time, other things being equal, it is desirable that the rays of the sun should strike the sloping glass-roof very perpendicularly. This becomes a matter of greater importance when the glass consists of the sloping roof alone; when there are upright front sashes a yard or two in depth, the inclination of the roof, if somewhat flat, is a matter of much less moment, because during winter and early spring the rays of light will be perpendicular to the upright glass in front. We will not now enter upon the consideration of curvilinear, or span, or ridge and furrow roofing, in connexion with upright sashes in front, which possess for many purposes great advantages, farther than to say that if you can have glass on all sides, and heating power in proportion, so much the better.

A span-roofed house for forcing should stand with its ends north and south, that its sides may face the east and west. Our remarks, however, have more reference to lean-to houses possessing brick back walls. The influence of the sun's rays, as respects

light and heat, upon any surface, will be in proportion to the perpendicularity of those rays to that surface. If a thousand rays strike perpendicularly upon a surface of the best crown glass, it is calculated that all will pass through it with the exception of a fortieth part; but if the same rays fall obliquely the number altogether reflected will be in proportion to the size of the angle formed by each falling ray, and a perpendicular line from the surface on which it falls. Thus, according to Bouguer, if the angle of incidence so formed is 50° , the rays altogether reflected will be 57; but if the angle is 85° , the number reflected will be 543 in the thousand. Hence the importance of having steep and narrow houses for early and late work. A roof sloping at an angle of 45° has been a favourite with gardeners for general purposes, not as a mere matter of imitation, but embodying the wisdom of avoiding extremes, and taking a middle course. The sun will strike upon such an inclination perpendicularly in the beginning of April and September, and will not be very oblique for a considerable time either before or after these periods. Mr. Knight, to whom we are all so much indebted, in order to have the greatest amount of sun in early houses for ripening their crops in June and July, constructed separate houses with an angle of 28° and 34° . For very early forcing nothing beats the old Dutch narrow houses, where the roofs formed an angle with the perpendicular line of from 15° to 25° . For those not conversant with the matter, it will be useful to remember that a perpendicular height, above where the sloping sash rests in front, equal to the width of the house will always give an angle of 45° between the sloping glass and the perpendicular line. Thus, in the annexed figure,



if ab and bc be twelve feet, the angle as at d will be 45° . If it were desirable to give a house of similar width an angle of 30° , e , the perpendicular line, must be elevated to f , as shewn in the dotted lines beg and fa . To prevent the necessity of having

such staring exposed objects in our gardens, it is customary to lessen the width of the house, which of course decreases the necessary height, and also to join the sloping roof to a short-hipped one, either opaque or, better still, of glass, as shewn at g . For a house or pit of the same width, with an angle of inclination of 70° , h , the perpendicular, will only require to be $4\frac{1}{2}$ feet higher than at the front, as shewn in the dotted line ka : decrease the width and the necessary height will be lessened in proportion.

"Why," says Mr. A., "there is in Mr. B.'s vinery a fine crop just now changing colour, and the roof is as flat as Mr. Fish represents as an angle of 70° ." True; at this season, provided your plants are near the glass, any inclination of roof will do. But would you succeed so well with the same amount of trouble and expense as with a steep roof, if you were to cut fruit in May and June? Will Mr. B. preserve his grapes hanging through the autumn and winter as easily as he would have done if his glass roof had been so steep that neither outside nor inside would retain moisture except in wet weather? Cucumbers have been cut in the winter from frames and pits with the glass at an angle of 80° , and strawberries have been gathered in similar places in March and April; but I submit that neither results could be depended upon so surely as if the angle had been from 25° to 40° . I am more than blessed with flat-roofed houses—the steepest having the angle of inclination about 47° ; and that is the only place I can fully depend upon for setting early strawberries in February and March. I should like an angle for this purpose 10° less. The folly of flat structures for early work is constantly obtruding itself. In a pit with an angle of 80° , in winter and early spring half of the light and heat from the sun never penetrates the glass. As the sun rises in altitude they answer admirably during summer. I do not advise you to pull your houses about, but, if erecting new ones, you will be none the worse for pondering these matters.

ROBERT FISH.

FRUIT-TREE BORDERS.—Mr Bailey, gardener to the Archbishop of York, after giving honourable testimony of our coadjutor, Mr. Errington, being "one of our most skilful gardeners," gives an epitome of his own experience in the formation of fruit borders, and we quote this chiefly to show our readers how entirely two first-rate authorities agree upon this important point. The following, it will be seen, is quite coincident with what Mr. Errington enforces in these pages. "I have paid much attention to the management of fruit-tree borders, and feel convinced that the great object we should have in view is, to secure a shallow stratum of sound pure loam on a dry and impervious bottom; to avoid mutilating the surface roots by cropping the border with vegetables; not to apply rank and stimulating manures; and to keep the mass of soil always open, healthy, and permeable to the sun, air, and rain, using especial precaution that excess of the latter is not permitted to saturate the soil. Nothing, in my opinion, is more injurious to wall-trees than the heavy cropping of the borders in which they are planted."—*Journal of Hort. Society*, iv. 208.

THE KITCHEN-GARDEN.

THE season is now arrived when every nook and corner of the garden should be planted with some useful article for winter and spring consumption. Sloping banks should be formed in all convenient situations, as not only will more surface ground be obtained in this way, but the soil will thus become well mixed and pulverized, and be well prepared for future crops. These banks have also a neat and rather ornamental appearance.

Coleworts should now be planted abundantly, as well as *Savoy*s, where ground can be spared. If any variety of *kales* or kitchen vegetables are left in the seed bed, they should be planted thickly out on banks, and they will be found very useful in late winter and spring. If not required for family use they will be most valuable to those who keep either a cow or a pig; and, if not needed for either of these purposes, they will yet come in usefully for trenching down as manure in spring for succeeding crops.

SWEDS TURNIPS.—The present month, as well as the month of September, will be found the best time for transplanting this useful vegetable. We have had some practice in these matters, and find, from experience, that the Swede turnip always seems to thrive best when transplanted out about the size of an egg. The size may vary from the egg of a pigeon to that of a barn-door fowl. The roots or bulbs do not at that size suffer from moving, but start at once into growth, having sufficient nutriment at that stage to support both foliage and fibre. We last year planted a large piece of ground, after wheat, with Swedes, which produced by December a heavy crop of fine bulbs: the crop was then drawn, topped, and stored in ridges, covered with straw and earth, and also thatched, affording good food for boiling for the pigs and other stock until midsummer. This season we have made the same preparations for planting another large piece of ground as soon as the wheat is carried. We lay the bulbs in after the plough at about two feet apart each way. This crop by being cleared and stored is off the ground in good time for trenching and ridging in readiness for such other crops as *mangold-wurtzel*, *carrots*, or *parsnips*, and thus allows the ground to be left vacant during the last part of the winter season, so that it may become sweet, healthy, and well pulverized by the time it is again required. The advantage of such a system of cropping is very great to those who are able to clear away their crops of second early potatoes, or who have any other spare ground in their gardens which they can plant out banks, where this excellent bulb, the Swede turnip, may be transplanted. We ourselves adopt the plan in our gardens, and obtain plenty of large-sized bulbs, as well as an abundance of early spring greens.

Leeks should still be sown in succession, and the last sowings of *cabbage* and *spinach* made. Make, also, successional sowings of the hardiest kinds of *lettuce*, as previously recommended. *Onions* to stand the winter should now be sown, and those that were sown last spring may be bent gently down with a pole without bruising, and as soon as they are ready for harvesting lose no time in clearing them away, manuring the ground, and ridge-trenching it up into sloping banks, for planting the main crops of early spring cabbage, the plants of course being first pricked out and prepared strong for the purpose. Not an inch of soil, we repeat, should now be left uncropped for the winter, when all productions may be turned, in one way or the other, to good account by a little management and forethought.—J. BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 39.)

EVERGREENS may be increased by cuttings, and in this month we may begin to make them. Showery weather is always the best in which to effect this. The soft and fertilizing nature of rain, and the corresponding coolness of the atmosphere, is far more favourable to cuttings or slips than all the water or shade we can afford them, under a hot sun, or during the continuance of dry weather. I know how interesting all garden operations are, and how anxious we are to begin them; but if we can only be patient, we shall gain more time, and save many more of our little charges, by waiting for suitable weather, than by hurrying them into dry soil the moment the proper month arrives, and deluging them with hard, unrefreshing water. Many of my readers have, no doubt, remarked the different appearance of their window plants, however carefully they have been watered in-doors, when placed upon the lawn to receive the summer shower. What real enjoyment they seem to feel! for there is such a susceptibility in plants, especially as regards the rain and the dew, that it may almost be called *feeling*. How good would it be for us if we thus received and rejoiced in the "doctrine" that drops "as the rain,"—the "speech" that distils "as the dew, as the small rain upon the tender herb, and as the showers upon the grass."

Choose a shady border for evergreen cuttings, and do not cut them very small. I believe I have often failed in cuttings of roses and other plants by making them too short, and perhaps choosing shoots that are too small. The larger they are, provided the wood is of the proper age (that of the previous year), the more sap and vigour they will possess, and therefore the less likely to weaken and die off. Evergreen cuttings should be about eight inches long. Strip the leaves from the lower half of the cutting, and place it deep in the ground, pressing the earth firmly round it. I always keep cuttings in water for two or three days before planting them. I fancy they gain vigour by imbibing moisture freely beforehand; and this is very possibly an ignorant idea, and they might do equally well without it. Evergreens are such useful additions to a garden, and are so invaluable as screens and shelter in a thousand ways, that a nursery of them would be very convenient, if a space can be spared for the purpose; and we could then quickly carry out any little fanciful idea, or fill up an unavoidable opening with little loss of time. In a fit of caprice, sometimes pardonable in our garden affairs, I have found great comfort in a spare laurel or two. By popping them into a needless pathway, or on the site of an unnecessary flower bed, the face of things is changed at once, and the desired effect rapidly obtained. I think that if cottagers could set apart a small space in their gardens, when tolerably extensive, to rear young fruit trees or garden shrubs, they might make a few shillings in the course of the year by disposing of them. In villages far removed from nursery gardens, such a plan might prove useful to many, who could not conveniently obtain such trees, and would be but little trouble to the cottage gardener himself, and a source of some trifling profit. Evergreens do not like a chalky soil—they will not grow richly in it; they love a strong, stiff soil, and will even do well on gravel; indeed I know laurels that grew on gravel escape a frost that killed those in other

ground down almost to the roots. I think I have before remarked, that laurels should not be allowed to grow up very high, or else they become bare in the stems, and leafy only at the top, and soon disfigure the shrubbery. If great height is required, a portion of the stems should be cut out yearly, so that the shrub might be always a screen, and yet receive its regular and proper pruning. By this means we may avoid cutting down a whole shrub at once, which often disfigures a garden for some time.

The flowers of autumn are rich and deep in colour. How brilliant and how various are the queenly dahlias—and how gladly they bloom in the cottage garden. They are autumnal treasures, and when placed in masses, and the colours tastefully blended, they really light up the garden. A bed of crimson and primrose-coloured dahlias has a splendid effect; the contrast, though strong, is very agreeable to the eye, and almost dazzles us as we gaze. The dark, nearly black, maroon flowers contrast well with some of the paler sorts—and the deeper the shades, the more velvet-like is the bloom. The single dahlias, particularly the scarlet, are very elegant, but there is such richness in the double flower, such exquisite precision in the finely fluted petals, that it is impossible not to prefer them. Beautiful and wonderful is every flower that blows; but there is something extremely striking in the 'quilling' of the dahlia, and in the neatness and firmness of its form. It comes from the sandy plains and lofty mountains of Mexico, where it grows wild, but it is not, in its native land, so fine, so bright, or so well shaped, as it is with us, nor is it ever a double flower until brought into cultivation. The dahlia was named after Dahl, a Swedish botanist; but it was brought into England by Baron Humbolt, a distinguished naturalist, in the year 1789. It left a home of fruitful soil, a soil full of gold and precious stones, of deep interest too in its eventful history. It tells us how a wise and polished empire, whose existence had been for centuries, suffered for the sake of its glittering produce, the gold which perisheth. How ought England to fear lest, even in her enlightened state, gold should be her idol! In every cottage garden the dahlia blooms. In every lordly garden it stands brightly conspicuous. Let the rich and poor, alike, listen to the affecting tale it tells, and take speedy warning. It would be well for us if riches only made "themselves wings," if they only flew away "as an eagle towards heaven;" but they do more than this, they draw the heart after them, and take it captive. We have high authority for believing that it is very hard, when we "trust in riches," "to enter into the kingdom of God."

Let us all, as we watch over our gay and fragrant flowers, hear a word in season; let us not "trust in uncertain riches, but in the living God, who giveth us all things richly to enjoy."

NEW PLANTS WORTHY OF CULTIVATION.

CAPITATE ALLOPLECTUS (*Alloplectus capitatus*).—This is probably a native of tropical America, and requires a moist stove. Its flowers and stem are bright crimson, and it blooms in March and April. It may be grown in loose peat, care being taken not to give too much water in winter.—*Bot. Mag.* 4452.

SPLENDID AMHERSTIA (*Amherstia nobilis*).—This most beautiful of all flowering trees is a native of Birmah, and requires a moist atmosphere, with a temperature ranging between 70° and 80°, and a bottom heat of 90°. It requires shade during intense sunbshine; and the soil best suited to it is a well-

drained mixture of rich loam and peat. It may be propagated by layers.—(*Bot. Mag.*, tab. 4453.) The writer of this well remembers the impression made upon him when he first saw the long, pendulous, pale green foliage, and equally graceful wreaths of pink blossom of this all-lovely tree waving upon the warm breeze in the Botanic Garden at Calcutta. It was providently planted by Dr. Wallich in an open yet shaded quarter, enclosed by a palisade, and the harmony and delicacy of the colours, combined with the elegant form and soft flowing movements of all its developments, was an exhibition of vegetable beauty such as we never looked upon either before or since. Mrs. Lawrence has the honour of being the first to bloom it in England.

LEMON-COLOURED CYRTOCHEILUM (*Cyrtocheilum citrinum*).—A pretty orchid from central America. Thrives in a basket of turfy peat, suspended in the cool division of the orchidaceous-house. Shade in summer, and do not give too much water in winter.—*Ibid.*, tab. 4454.

TO CORRESPONDENTS.

POTATOES FOR SEED (*A Rector*).—It is possible that Walnut-leaved, or even Ash-leaved, Kidney planted early in August may ripen tubers, very late in the autumn, of sufficient size to serve for seed next year. The doubt is whether the tubers would ripen sufficiently then to produce a healthy vegetation. We are quite sure no variety taking longer to perfect its growth than those we have named would so ripen its tubers. We should like to know the result of your experiment, employing chiefly the Walnut-leaved Kidney, a light, well-drained soil, no manure, a southern aspect, planting four inches deep, and not earthing up the plants.

FORTREY (*J. H. S.*).—To induce hens to lay in the winter, give them each daily about half an ounce of raw meat chopped fine, and a few handfuls of sunflower seed are additionally influential. Do not let the cock company with the hens, but keep him shut up, and do not allow any nest eggs to remain in the nests. We do not know which are the best layers of the two varieties you mention—Chittiprats and the Golden or Silver Pheasant hens. Can any of our readers give us this information?

HINTS (*J. Lloyd Phelps*).—Thanks for your suggestion, but, as we publish in weekly numbers, we cannot do more than give in the last number of each month a calendar of work for the next month. Some soils will not grow good flavoured potatoes, but such soils are usually heavy, or badly drained. If this is your case, grow your potatoes in narrow beds with deep trenches between them, elevating your beds before planting by putting on to them the earth from the trenches. And mixing with the soil a good thick dressing of coal ashes or charred vegetable refuse.

FUCHSIA SOIL (*A Subscriber*).—You will find this, and an excellent essay on the culture of the plant, at page 221 of our first volume. *Geranium* soil is stated at page 114 of the present volume. You cannot successfully bloom geraniums in winter without a hothouse. They ought, when not forcing, always to be kept with the soil very slightly moist, and no more heat than suffices to exclude the frost from them through the winter.

STRAWBERRY FORCING (*Ibid.*).—Kear's Seedling and Black Prince are the best for this purpose. Much will give some directions for the management of the plants in due course. As a general rule, *flowers in winter* should have very little water.

GREENHOUSE CLIMBERS (*X. Y. Z.*).—Seven most excellent plants of this description are *Habrothamnus fasciculatus*, *Solanum jamaicense*, *Climanthes pumilus*, *Jasminum grandiflorum*, *Mandevilla suaveolens*, *Herbert's Passion-flower*, and *Clematis grandiflora*.

HEATING A SMALL PIT (*A Constant Subscriber*).—They are quite right who advise you that a fire to heat your pit nine feet long by three feet nine inches wide would burn up your plants. We presume that you merely require to keep out the frost, and, if so, an iron pipe, two inches in diameter, running along the front of your pit, and returning along below the same, united at each end by knee pieces, and one of these knee pieces passing into the fire of a small furnace, would be sufficient without any boiler. A small reservoir must be attached, and communicate with the return pipe, to keep the apparatus constantly filled with water. Lead colour is that usually adopted in painting garden frames, but we see no objection to green. White is the best for the inside of your pit, for it increases the degree of light.

SUCCESSION OF FLOWERS (*Sabrina*).—You will find a very full and descriptive list of summer and autumn blooming flowers at pages 33 and 34 of our first volume.

HOLLYHOCK SEEDLINGS (*Ibid.*).—Plant these out this autumn where you wish them to remain for blooming. Auricula and Canterbury bell seedlings treat as directed for polyanthus seedlings at page 248 of our last number. Your rose leaves have been eaten by the caterpillar of the saw fly (*Tenthredo athiops*), as described at pages 179 and 222 of the present volume.

SOCK KNOT (*G. H.*).—Select the embages with the most solid hearts, cut these in half, rejecting all the loose leaves and stalk, and

then slice them up into very thin slices. If you have 200 lbs. weight of these, and much less will not ferment, then you will require a mixture of 3 lbs. of salt, 4 oz. of pounded caraway seeds, and 2 oz. of pounded juniper berries. Into a clean 12 gallon cask, sprinkling first the bottom with a little of the mixture, put a layer of sliced cabbage, about 3 inches thick, then a thick sprinkling of the mixture, and so on alternately, until all is stowed in the cask, pressing down each layer very tightly as you proceed. Put a layer of cabbage leaves on the top, and then a clean cloth, upon which place the lid of the cask cut so small as to fit easily within it. Upon this lid place a heavy weight. A 25 lb. weight will not be too heavy. Let it remain in the kitchen, or other warm place, fermenting for a month. Then pour out all the liquor which has formed, and fill up the cask with a brine made with a similar mixture of salt, &c., dissolved in water, taking care always to fill up, from time to time, to keep the cabbage covered with brine. In cooking soups, trout, take the quantity required for dinner, put it into a stew-pan with water just enough to cover it. Let it stew gently for three hours, stirring it as necessary to keep it from burning. An hour before serving it up, put in a few sausages, or a piece of pork, and serve up together.

EYES (*Ibid.*).—These, both the land and the water eels, are perfectly harmless. They are not poisonous; and live upon insects. The great water eels attack and devour even the tadpoles.

STOVE FOR A GREENHOUSE (*Drusus*).—This should be outside, unless made on the Amott system, adopted so successfully by Mr. Rivers, the well-known florist and crysanthemum grower at Woking. A description of this stove is given at page 286 of our first volume. Plants under a frame require the same treatment as in a greenhouse.

VINE BORERS (*Ibid.*).—You will find very ample directions as to these at pp. 283-4 of our first volume. The directions are equally applicable to wall and garden vines.

BRITISH QUEEN STRAWBERRY (*Ibid.*).—This has failed in many places during this year. It does not require any cultivation differing from that necessary for other varieties. The extreme dryness of the present summer, and the inclement seasons of last year, are the causes of failure, we think, in the fruit produce ought to be very superior, if the season is propitious.

JOINING SWARMS OF BEES (*H. T.*).—You will find full directions for so doing at page 164 of this volume. Your other query shall be answered next week.

FORCED HYACINTHS AND NARCISSES (*H. Struggle*).—These, which were forced last winter, look smaller than they did when turned into the border from the pots in which they had been forced, and their offsets are very small. These circumstances always occur to these bulbs after forcing. They will not do to put again this season, nor will they recover in less than two years. Plants of narcissi planted in a spare border, covering them three inches deep, and cut off their flower-stems next spring as soon as they appear. The forced hyacinths ought to be planted a month sooner than the usual time, say about the middle of September; and they also ought not to be allowed to flower next season. Do not remove the offsets from either of them.

WINTER CARNATION (*Ibid.*).—We do not know the flower by this name. Is it not the Tree carnation? At any rate, as it seems stunted, you cannot err by turning it out of the pot into a good border; and when it is strong, you can either take slips from it for a stock or layer some of the bottom shoots.

JAPAN LILIES (*Ibid.*).—These you have potted into 32-sized pots, which are far too small for flowering bulbs of the Japan lilies. Keep them moist as long as they are green, and when at rest put them into pots two sizes larger, taking off a little from the sides and bottom of the ball, and keep them as cool as possible through the winter, giving them no water till they sprout well above the soil.

BOTANICAL TERMS (*Ibid.*).—We endeavour to interpret all these as we go along, but some are so familiar to us that we sometimes pass them by without thinking. You will find, for reference, that we have frequently explained the terms "stamens, anthers, and pistils," "Monopetalous" (one-petalled) means that the corolla or flower-leaf is in one leaf, or of several petals united together.

DISEASED CUCUMBERS (*Rev. J. Frost*).—Your cucumbers are affected exactly the same way as those of our correspondent S., to whom we replied at p. 248, and we believe that in your case the origin of the disease is similar—too much moisture and too little warmth to the roots compared with the dryness and heat of the air in which the leaves have grown. We are confirmed in this opinion by the fact that your "first crop" was in a frame, while the last was in a good heat, "was abundant and perfect," and it was only since cutting back the plants, and "they threw out vigorous shoots," that the disease appeared. Your ridge cucumbers being similarly affected, though not to such an extent, still further confirms our opinion. Excess of cold water to the roots of the plants in such a hot dry summer as we have had would produce the disease. As soon as roots cease to supply the requisite amount of sap to a highly stimulated leaf or fruit, so soon does disease commence in them.

FINE APPLE CROWNS (*F. G.*).—These, which you have obtained from pine apples imported from the West Indies, will not grow at all unless in much better condition than any we have yet seen. In a dung-bed covered with a frame, under the best of circumstances, it is very difficult to grow pines. We will mention the subject again next week.

MYRTLE CUTTINGS (*T. Morgan*).—You will find some directions in answer to another correspondent. Your large myrtle, dividing into two stems a few inches under the soil, may be split into two about the middle of next March, but certainly not now.

ERODIUM MOSCHATUM (*Ibid.*).—This is a mere annual weed growing in many parts of England, as near Bristol, Oxford, Craven in Yorkshire, and Bedfordshire. The seeds being only of interest to botanists do not come within our province.

NIGHT SOIL (*P. W.*).—The disagreeables attendant upon the use of this are quite as objectionable as you mention, but the smell may

be overcome by mixing it with gypsum powder and charred weeds, or other carbonized matters. Mixed with this and a little of your coal ashes it would become a crumbly mass easily manageable. In our first volume there is more than one plan given for separating the liquid from the solid portions of the house sewage. As your soil is light, the fertility of your composts had better be sold; you could only use them advantageously to make paths in your kitchen-garden. Artificial manures are very good for certain purposes and to a certain extent, but there are none that will ever supersede nature's manure—manure—the dung-hedge. It contains the principal ingredients of all artificial compounds, and is the most complete.

FRUIT (*E. B. W.*).—Your peach, with the sharp point, ripening in October, the *Catherine*, if it has roundly-notched leaves, kidney-shaped glands on their stalks, and the flesh of the fruit is yellowish-white, very red near the stone when ripe, and the skin yellowish-green, sprinkled with red dots next the wall. Your other questions shall be answered next week.

HIMALAYAN POMEGRANATE (*W. Clap* and others).—We have not a seed of this left, and have lost the stock. We only kept four seeds for ourselves, and not one of these vegetated. If any one to whom we sent seed can send us one or two in return, we shall be much obliged.

HUISE'S HIVES (*E. G.*).—We advise you to apply for these to Messrs. Neighbour and Son, Holborn.

CATERPILLAR ON FILBERT-LEAF (*Equiper*).—The colony, forty or more in number, of small yellowish, with blackish-green wings, black heads, dotted with the same colour, and hairy, are the larvae of the Bull-tip moth (*Hammatoptera buerphala*).

VINE-LEAF BLOTCHED BROWN (*T. W.*).—The vine-leaf was considerably shrivelled and dried up when received. No insects were discovered. Slight traces were observable, such as thiaps leave behind them. Whatever the ultimate, the proximate, cause of the brown, dried-up blotches was burning by the sun's rays. This sometimes results from allowing the accumulation and condensation of vapour into drops to take place, from not giving air sufficiently early in the morning, more especially when bright sunny weather succeeds that which is cloudy, as then the leaves are more than usually tender and deficient in firmness. At present all houses should have air at night. This burning also results from waves and knots in the glass, which act as so many foci for concentrating the sun's rays. For a remedy, remove the glass, or, what would be more economical, daub the parts, either outside or inside, with a thinness solution of glue and water, containing the smallest quantity of white wash to slightly colour it. It will remain on during the season, and can easily be removed by damping and rubbing, thus ensuring for the summer the advantages of ground glass, without its disadvantages in winter. When the thiaps attack the vine, the parts which they have chiefly injured are the leaves, and these are burned into a blackish-brown, and the transpiration. We presume the vine-leaf sent was a small one: if of the general size, then we should say the roots were deficient in nourishing power, and then the sun would more easily burn them.

RED SPIDER ON CHERRY (*Ibid.*).—Give your tree so early with the red spider a copious deluging with clear soft, lime water, and soap-suds, and point with sulphur on the wall in a bright day.

TRIPS ON CUCUMBERS (*Ibid.*).—The cucumbers in the stove, so bad with the thrip, will be hard to cure. They may be kept down with clear lime and soft water thrown forcibly over the foliage; clear laurel water is more effectual still, but must be used weak, and with caution. You had better get some nice cuttings from a neighbour, or, if not convenient, clear, by washing in weak tobacco water, the points of some of your own plants, place them under a glass in small pots, in a gentle sweet bottom heat—they will be nicely rooted in a week; give larger shifts as wanted. Clear out then the whole of your present plants, and in about a month or five weeks you may have nice healthy plants producing fruit, which will continue to do so during the autumn, and, if you choose, the early part of winter. We ground this advice upon the fact that the young parts of a plant are generally the least affected with the thrip, and also because we have several times practised the same method with advantage.

NAMES OF PLANTS (*M. S.*).—It is quite impossible to tell with certainty the name of your from a faded single flower, labelled by the post-office stamps. There are several names bearing in all differently named, and only distinguishable by minute peculiarities. It seems to be very like *M. Ellii*, but the seed-vessel rather differs from those we cultivate. (*X. Y. Z.*)—No. 1. A species of *Clematis*, but cannot say which without a better specimen. 2. *Crataegus odyssea*, a shrubby greenhouse plant. 3. Send a specimen of this with a flower on it. 4. *Cytisus rhinodaphne*, a greenhouse or conservatory plant. 5. *Sedum acre*, a common English plant, good for rockwork. 6. An *Euphyllium*, and we think *E. phyllanthus*, but the specimen is too imperfect for us to be certain. 7. *Aeschynanthus*, a greenhouse plant. 8. *Chenopodium*, a greenhouse plant. 9. The fruit of the plant of which you sent us a leaf. It is the *Colocynthis* or Bitter Cucumber, *Cucumis colocynthis*, a most violent purgative, although the seeds alone are nutritious and used extensively as food in India. (*Row*).—Your house-louse, we think, is *Villores Maud*; it differs from the old York and Lancaster in being smaller, more double, and the red striplings inclining more to purple. (*E. B. W.*)—Your fleshy-leaved plant is *Crassula coccinea*. See what Mr. Deaton says to-day and next week relative to their culture.

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WEEKLY CALENDAR.

M D	W D	AUGUST 23—29, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
23	Th	Gold-spot north seeu.	Tansy.	v	5 a. 7	9 34	5	2 25	235
24	F	St. Bartholomew. Starlings flock to- gether.	Sunflower.	1	3	10 2	6	2 10	236
25	S	Winged ants migrate.	Perennial Sunflower.	3	1	10 33	8	1 54	237
26	SUN	12 SEN. ART. TRIN. PR. ALBERT A. 1819.	Banded Amaryllis.	5	vi	11 9	8	1 37	238
27	M	Grey plover comes.	Hedge Hawk-weed.	6	57	11 50	9	1 20	239
28	Tu	St. Augustine. The knot arrives.	Golden Rod.	8	54	morn.	10	1 3	240
29	W	St. J. Bapt. beh. Martins collect on roofs.	Yellow Hollyhock.	9	52	0 37	11	0 45	241

ST. BARTHOLOMEW, or Nathaniel, as he is called by St. John, has this deathless praise recorded of him—"Behold an Israelite in whom there is no guile." He preached the gospel in Arabia, Phrygia, Lyconia, and Armenia; and it was in the country last-named, about A.D. 73, that he suffered martyrdom by being flayed alive. It is sometimes called "Black Bartholomew-tide," because more than one act of tyrannical persecution has occurred upon this day. The most cruel and bloody of these was the massacre of the French Protestants in 1572. In allusion to the dry weather usually prevailing at this season, there is this proverb:—

"All the tears that St. Swithun can cry
Bartholomew's dusty mantle waxes dry."

ST. AUGUSTINE (*Aurelius Augustinus*) must not be mistaken for Augustin, or Austin, whose anniversary was noted under the date of May 26th. The ecclesiastic thus commemorated was a native of Numidia, became bishop of Hippo, and died on this day in the year 430. He was a most voluminous writer on religious subjects, and

some of his works are still in request. The Eremites, or order of Augustine friars, arose, it is said, from the habits of seclusion he adopted.

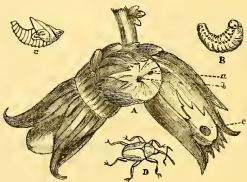
ST. JOHN THE BAPTIST.—On this day the anniversary of his execution by Herod was formerly celebrated. See June 24th, p. 139.

PHENOMENA OF THE SEASON.—In our last we gave instances of the dispersion of plants by the agency of the winds, and we will now enumerate some examples of the currents of rivers and of the ocean being equally efficacious. The seeds of the willow herb (*Epilobium hirsutum*), and of the various species of willow (*Salix*), are clothed with a down sustaining them on the surface of the waters by which their parents delight to vegetate, and to the welcome shores of which they are either borne by the stream or wafted by the breeze that sweeps over it. When Francis Leguat was wrecked upon the island of Rodriguez, he found no cocoa-nut trees upon the island, though many of their fruit were brought by the sea to its shores, and from these he and his unfortunate fellow-outcasts planted the island.

These nuts floated thither from the island of St. Brande, situated far away to the north-east of Rodriguez. By means of the rivers which bear their seeds down into the Baltic sea, many of the plants of Germany are carried to the shores of Sweden; by similar means the plants of Spain and France reach the coasts of Britain; and those of Africa and Asia, sent to those of Italy. Sir Hans Sloane frequently found the fruit of the nicker-tree (*Gmelina bonduc*), and of several other West Indian plants, thrown by the sea upon the northern islands of Scotland; and Dr. Tinning found similar produce similarly conveyed to the shores of Norway, among them being the Cashew nut (*Ascardium occidentale*), probably after having floated over the intervening 2000 miles.

AUGUST	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
23	Cloudy.	Fine.	Rain.	Fine.	Showery.	Fine.	Cloudy.	Cloudy.
Highest & lowest temp.	73°—44°	85°—46°	69°—53°	69°—38°	70°—50°	71°—59°	61°—46°	70°—42°
24	Showery.	Stormy.	Fine.	Fine.	Fine.	Fine.	Cloudy.	Showery.
	67°—45°	70°—55°	74°—40°	71°—49°	73°—44°	68°—46°	65°—49°	64°—41°
25	Showery.	Stormy.	Fine.	Fine.	Cloudy.	Fine.	Fine.	Showery.
	67°—60°	71°—57°	73°—56°	73°—50°	73°—50°	69°—52°	74°—50°	66°—50°
26	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Showery.
	79°—62°	89°—56°	77°—46°	76°—47°	71°—46°	74°—56°	72°—43°	70°—54°
27	Cloudy.	Cloudy.	Fine.	Cloudy.	Fine.	Fine.	Fine.	Showery.
	81°—51°	74°—50°	75°—47°	71°—38°	71°—51°	76°—57°	81°—46°	69°—63°
28	Fine.	Showery.	Rain.	Fine.	Fine.	Fine.	Fine.	Cloudy.
	77°—52°	73°—56°	71°—59°	78°—40°	66°—47°	73°—56°	81°—55°	71°—50°
29	Fine.	Stormy.	Cloudy.	Fine.	Fine.	Showery.	Fine.	Fine.
	81°—51°	74°—55°	74°—59°	79°—42°	69°—43°	72°—48°	75°—44°	70°—47°

INSECTS.—At this season the maggot found in the kernel of the filbert and hazel nut becomes familiar to every one. This maggot is the larva of the Nut-weevil, *Balaninus nucum* of some entomologists, and *Curculio*, or *Rhyssalus nucum*, of others. The parent weevil is greyish-brown, with darker bands; is about a quarter of an inch long, and has a red, slender beak, about the middle of which are placed antennae; the beak is as long as the body. When the nut is in a young state, the female weevil, some time in May or June, deposits in it a single egg. The maggot is hatched in about a fortnight, and continues feeding in the interior of the nut till it is full grown. The nut often falls when the maggot has attained its full size, and the nutcracker then eats its way out, buries it itself in the earth, and becomes a chrysalis. The maggot has no legs, nor, indeed, has it any use for them, being hatched in the midst of its food; and it is capable of moving faster than might be expected, solely by the alternate contraction and extension of the segments of its body. The only remedy we are aware of is, in the course of the summer, to frequently shake the trees, which will cause the eaten nuts to fall to the ground, when they must be collected and burned. A, bunch of filberts; a, the healed wound caused by the weevil when inserting its egg; b, the end of the nut; c, hole through which the maggot came out; B, the maggot or grub; C, the chrysalis; D, the parent weevil.



MR. RICHARD PAYNE KNIGHT, one of our most judicious writers upon "The Principles of Taste," has observed that "when many sorts and varieties of flowers are skillfully arranged and combined, as in the flower-pots of Vanhuysum, they form, perhaps, the most perfect spectacle of mere sensual beauty that is anywhere to be found." At page 193, we gave a few hints how flowers might thus be "skillfully arranged and combined," but such of our readers as can refer to one of Vanhuysum's paintings of flowers will there see

"philosophy teaching by example." They will observe that, in grouping his flowers, this most exquisite painter usually placed the brightest in the centre, gradually decreasing in intensity of colour from that centre to the edges of his groups. They will also find that in each of these lovely nosegays there is one prevailing colour. If it were not so, the group would appear patchy or spotty; and in forming our bouquets we shall find the importance of following the same rules. If a spray of bright crimson roses

be in the centre, paler roses should be near to it on either side as well as above; if geraniums prevail in our group, the scarlet should be in the centre, and the lighter tinted varieties more distant from it, according to their hues.

One correspondent asks us "which we think should be the most prevalent colour in bouquets?" But it is impossible to lay down any rule for this. All are beautiful, and the decision of which is the most so varies with the taste of the judge, and that taste is influenced by such circumstances as associated colours, climate, and seasons. Thus, we thought, when about to settle for a time within the tropics, that green would be a cool and refreshing colour for the eye to rest upon; but, so far from this being the case, we found that crimson was the most pleasing for the furniture of our rooms. In some degree this arose from the excess of that cold absence of colour—white—which predominated in the objects around, from the costume of the native servants to the entire walls of the apartments. Yet it is the same, we think, even in England. Here, a bouquet of the brightest flowers is more agreeable to the eye in drawing-rooms than one of paler tints during the intense heat of a summer-day's noon tide.

On these points we have received the following letter from a correspondent evidently accustomed to practise what good taste dictates:—

"One of the most beautiful bouquets I ever saw was composed of a mass of scarlet geraniums interspersed with fairy white roses, and surrounded by half-blown double white camellias. A very pretty bouquet for mourning may be formed of white flowers surrounded by double violets. No bouquet is good without a rich green and a dead white. The flowers should be arranged in masses. For instance, gather myrtle for the green, scarlet geranium, a large tea-scented rose or two, a gardenia or Italian jessamine (if not come-at-able, some common jessamine), some golden calceolaria, and a bunch of nemophylla in signis or blue salvia, and we have the three primitive colours at once, which cannot fail to be pleasing to the eye, whether in painting, needlework, or the furniture of a room, in fact in every artificial arrangement of colours.* I have never been able to make a small nosegay look well where purples and lilacs were introduced, unless all reds and blues were excluded. In a large vase, of course, the compound colours may be separated from the primitive, and look extremely well.† The flowers I have named are selected because they are found in every garden. *Crasula coccinea* would be a splendid substitute for the geranium; dwarf magnolia for the rose, and blue achimenes for the salvia. The plumbago larpenutæ is also a lovely flower for the plumbago. A bouquet for the hand should be formed by winding a long string round the centre flower and successively round each as it is placed, which will bind them firmly together."

A physician, who wishes "Vilgyor" to appear as

the shadow of his name, observes in another letter now before us:—

"Transplanting plants in flower, to accomplish various desired effects in the way either of harmony or of contrast, brings to my mind a work of Sir D. Brewster's on Natural Magic, or some such popular subject, where he gives very valuable hints on this matter. As well as I can remember his hints, I believe that he takes the seven old colours of the rainbow; and, as a general rule, each colour harmonizes with the one next before or after it, and contrasts well with the third or fourth from it.

We all know that the colours of the rainbow are arranged as follows, beginning from the inner edge of its arch:—Violet, indigo, blue, green, yellow, orange, and red. These, if arranged in what may be termed "The Rainbow Round Robin," will stand thus, and illustrate the author's statement.



V harmonizes with I and R, and contrasts with G and Y; Y harmonizes with G and O, but contrasts with V and I, and so with the others.

"I have a great idea that this would make a good design for a set of flower-beds, each of one colour; and they might be surrounded by seven more, the outer set contrasting with the inner, and the centre might be white."

ANY of our readers intending to build a conservatory will do well, before carrying their design into effect, to pay a visit to that connected with the residence of Josiah Wilson, Esq., of Stonard House, Stamford Hill. It is not large, but the proportions are excellent, and the whole is characterized by elegance. The length, inside, is 29 feet 9 inches; the breadth 17 feet 3 inches; and the height of the sides 17 feet. From these spring an arched roof of glass, and it is to this that we would request particular attention. The roof is of rough plate glass, the largest plates being more than 5½ feet long and 4 feet broad; they are three-eighths of an inch thick, and curved so as to form the arch of the roof with but slight interruption of light by any framework, which is very slight, and none of the bearers nearer than 4 feet, to suit the width of the glass plates. Now, we do not advocate either that the glass be more than half the above thickness, or that the plates be so large as those employed by Mr. Wilson, though the size adds to the beauty, but the rough glass we recommend for adoption most decidedly. The light is as clear as it is without doors, but the glare of the sun's rays is intercepted. It is a softened, grateful light, which, after two years and a half of experience, both Mr. Wilson and his gardener testify is most favourable to the growth of plants, and we can also bear evidence as to the healthy appearance of those

* The three primitive colours, from which all others may be composed, are red, blue, and yellow.

† The compound colours, so far as flowers for bouquets are concerned, are orange, green, indigo, and violet.

growing there in July last. The flowering plants being so far from the glass as in the centre bed of the conservatory, there was not much fear of their being scorched, but Mr. Wilson has tested the power of rough glass to prevent scorching in other ways, and has found it quite effectual. We saw a frame glazed with it employed for striking cuttings and other purposes in which shading is usually necessary, but with this frame no such shading is required.

THE FRUIT-GARDEN.

THE VINE IN-DOORS.—Our last advice on this head was offered in the end of June, and will be found at p. 152 of our present volume. We there dealt with three of the principal crises in the annual life of the vine, viz., the development of the bunch, the first swelling of the berry, and the last swelling of the fruit. Having a few words more of advice to offer, we take up the subject at the point where we left it. Persons unacquainted with vine culture would naturally imagine that our last assumed crisis, "the last swelling," would complete all the advice that could be offered on this head, and that nothing requisite remained but a reasonable amount of patience to watch their ripening, and a keen appetite to enjoy the fruits of our watchful labours; we may add, also, protection from wasps and flies.

It is an old saying that "gardening is never done," and true it is. Even when our vines are rocked to sleep by the wintry storms, and robbed of their vinous treasures, we are still busy plotting another campaign; border making, dressing, and pruning, all present themselves to our view. "Life's cares, however, are comforts," according to one of our bards. To proceed, then, we will urge that although we advised the almost total stripping away of the lateral or axillary shoots in our June advice, yet we would here speak more guardedly with regard to those indoors; there is no occasion in the majority of cases to resort to such severe measures. There is great danger of those out-doors not ripening at all unless sunlight can be freely thrown on the wall or other body against which they are trained, for on the free absorption of heat by such solid materials much of the success will depend; the heat given out from this reservoir during the night greatly enhances the warmth of the air in the neighbourhood of the fruit. Still, it will be necessary to much reduce a considerable portion of them, especially where the parties desire to preserve their grapes as late as possible. By the end of September, however, ripe grapes in the greenhouse will require all the sunlight possible; indeed, it will then become absolutely necessary to prune away nearly every lateral, and even occasionally to strip away a leaf, for the sun must at that period be permitted to shine on the fruit itself.

The question here assumes another bearing, of a most important character to those who possess only one small greenhouse; and for such, we hold it a paramount duty to write most explicitly, such persons being less complete in vine culture in general than those who possess what is termed a garden establishment. The bearing to which we allude is the housing of the pot plants, for most of those who possess but one house endeavour to indulge in some little nick-nacks of this kind; and as we promised, when first commencing our observations on vine culture, to

show how the two purposes could be rendered compatible, we must now beg to enlarge a little on such matters.

The end of September, then, is a sort of epoch in the history of the little greenhouse containing both grapes and pot plants. At this period the plants must by all means be reintroduced; those, at least, of a true greenhouse character; and before introducing a single plant the house must undergo a thorough revision. We will suppose, then, that it is the middle of the month (by which period operations should commence), and that what plants were in the house at the time were all carried out for the sake of a thorough cleaning.

The first thing is to examine the flue or other heating apparatus. The flues must, by all means, be thoroughly cleaned: this is a process which requires much caution and some dexterity, and should not be trusted to an ordinary workman, for any slovenly neglect will endanger the character of the grapes, as soot, when dry, is so liable to rise into the atmosphere. A dull day should be chosen, in order that no air may be given to the house during the operation. This, and a constant application of water sprinkled frequently round the interior of the flue when opened, will guard against all injury from soot. If the day should prove sunny, a little shading might be thrown over the roof. In this way, then, a cautious workman may thoroughly clean the flues of a house without the least perceptible injury to the fruit. This being done, a gentle fire should be lighted immediately, and abundant ventilation again had recourse to. The next thing is to give the walls a fresh coating of lime-wash. As before observed, let a lively fire be kept up whilst this is proceeding, and air given day and night, in order to dispel all noxious damps which would otherwise be engendered during these processes, for they all involve the use of much water, it being necessary to syringe or sprinkle the floors occasionally for fear of dust rising on the grapes.

Painting we will say nothing about; it is too late for that operation, which should be performed just before the last swelling of the berry commences.

Any little repair necessary should now be accomplished, and a thorough cleaning-out should finish the whole. It is well, however, to wash all the wood-work with strong soap water, and to clean the glass. Plenty of sulphur should be introduced among the lime-wash, which will prove an antidote against the increase of the red spider.

Whilst these things are proceeding, a thorough dressing of the vines must be carried out. In the first place, we advise that all barren shoots which will not be required for the next year be entirely pruned away: this will serve to encourage the free admission of sun-light, on which, as before observed, everything depends. The next point is to see how much of lateral spray can be partially reduced or entirely stripped away: this depends on the luxuriance of the vines, together with the amount of severity practised at the summer dressings. We would assuredly suffer no lateral to shade the principal leaves, and even of the latter it will be necessary to make a little sacrifice occasionally: this must not be done in a reckless way, the object being merely to admit an equal quantity of the sun's rays all over the house, which will be imperatively required on behalf of the plants, and will, if cleverly performed, prove of no injury to the vines. Do not, however, remove any of the principal leaves from the last two or three eyes on the lower portion of the shoots; these must

remain to thoroughly organise the buds for the next year's crop. One large leaf beyond the fruit, if a healthy one, will suffice to cater for the bunch, and we would leave as many as we could of the growing extremities at the back of the house, rambling to the latest period: these will keep the root in play, and thus promote the feeding of the berries.

Now, if the vines are confined to the spurring system (which they assuredly ought to be, as connected with the culture of exotic plants in pots), these matters will be more easily carried out with a much less amount of severe stopping than here recommended; for, be it understood, our recommendations are not based on sheer abstract principles or sound practice, as applied specially to the vine or to pot culture—they are expedients, and, of course, less or more, are a compromise in degree of some principles. Nevertheless, the case may be brought to bear by a judicious course of action. If, on the other hand, the vines are, as we have many times seen them, spread over the whole area of the roof of a greenhouse, and plants cultivated, or rather (in too many cases) merely vegetated, beneath them, why then it requires some nicety of management to prevent the grapes from spoiling and the pot plants from "drawing."

We have now handled most of the details connected with greenhouse grapes and pot plants in combination; and we would urge on the amateur a consideration of the principles themselves which govern the success of such procedures. To understand these principles well is to obtain the "master-key" which unlocks all rule-of-thumb mysteries; this will enable an ingenious and mind-working amateur to fly where others creep. In the course of our labours, and before the year is out, we hope to return to this subject, and to deal with it on a broader footing, commencing with the very house and border; perhaps, however, our clever coadjutor, Mr. R. Fish, will anticipate us, and divert our labours to another track, for in handling the matter we certainly approach his confines.

R. ERRINGTON.

THE FLOWER-GARDEN.

NOTES OF A JOURNEY IN HERTFORDSHIRE (Continued).

BROXBORNE BURY, THE RESIDENCE OF MRS. BOSANQUET.—In a preceding Number we made some remarks on this place, but, as we only mentioned it in reference to the pillar roses, we shall now briefly notice a few other points in gardening that we observed on this occasion. The house stands on a gentle eminence, and has on the east front a valley, with a hill beyond it clothed with wood. On the south the valley widens, and the country is more open. West from the house are the flower-gardens; a wall covered with roses and other creepers dividing this garden from the vegetable and fruit-gardens.

The part we are now in is laid out in variously-shaped flower-beds, grouped on grass. One cluster of them is occupied entirely with verbenas, effectively arranged in different colours, one colour to a bed. Near to them stands a splendid tulip-tree, 60 feet high, of which the branches spread over a circle of 40 feet diameter. Beyond this flower-covered lawn a walk turns round the angle of the kitchen-garden, under a collection of hardy weeping trees. Amongst them, in particular, we noticed an uncommonly fine

rose acacia (*Robinia hispida*); the stem is seven feet high, and a number of stakes are so arranged that the shoots can be tied to them; as the tree advances in growth other stakes are set up, and the year's shoots tied to them. This has been repeatedly acted upon, and the result is a very pleasing one. Looking over the top of the tree it appears like a green table, whilst inside, when in flower, it looks like a fairy's bower, of which its pendant, elegant, rose-coloured blossoms serve for the festal lamps. This shrub is very apt to be broken with the wind, but trained in the above manner it is preserved from that danger. Passing under this beautiful, novel, weeping tree, we came to the rose garden. Perhaps this is the largest private rose garden in the kingdom. We did not learn the exact measurement, but it must occupy at least two acres; it is separated from the park by a plantation of laurels: this is in good taste, for, by this evergreen division, the eye is confined to the roses, and not distracted by other alluring objects. The standard roses are planted in long rows, and the ground between is occupied by dwarfs, thus covering it, and partly hiding the long naked stems of the others. At the farthest end a terrace walk has been formed, with rockwork in front, and a seat beyond it. Standing on this terrace, and looking down the rose garden, the effect is most beautiful, at least it was so then (July 9th). We walked down next to the wall between the kitchen-garden and rosery: this wall was covered with fruit-trees, which we understood, as might have been expected, bore no fruit, or very little, in the best season. These trees ought to be rooted up, and their place covered with such roses as Laura Davoust and others frequently mentioned in these pages as suitable for the purpose. We next visited the kitchen and fruit gardens, which we found well managed and in neat order. Leaving the gardens by the road to the Broxbourne Station, on the Eastern Counties line of railway, just in the hollow of the valley above mentioned, but within the wood, is a plot of ground laid out as an American garden and hardy fernery. A number of trees had been cleared away to make room for it, yet not to such an extent as to expose the plants to more light than is needful for their health. An irregularly winding walk led around this interesting spot, and at the turning point of this walk a shady grotto-like arbour is formed. Here we met with, and were introduced to, Mrs. Bosanquet, the amiable owner of this sylvan scene: she had the kindness to point out some of the rarer species of ferns. The health and luxuriance of all the established plants was really surprising. The soil in which they flourish so well is composed of sandy peat and leaf-mould in a half-decayed state: in this the kinds with creeping roots (or rhizomas) have formed large patches, particularly *Polypodium droipteris*, *Oncoclea sensibilis*, *Asplenium filix femina*, and others of similar habits. Many of those patches were from three to four feet across. Such kinds as do not creep were flourishing in a most extraordinary manner. *Aspidium lonchitis* (the holly fern) had fronds more than a foot long, and was sending up others of still greater vigour. The soil was covered with moss, which kept it moist, and no doubt was of great assistance in maintaining the ferns in such perfect health. If any of our readers should visit this place, they will do well to inquire for, and request to be shewn, this fern garden. We could have with pleasure spent a much longer time amongst its tenants, for the ferns are a tribe of especial favourites with us. But evening was approaching, and, what was quite as important, the time for

the train to London was near; and so we departed from Broxbourne Bury.

THE GENUS DELPHINIUM.—We intend occasionally to give a list of, and instructions relative to, the culture of some of the best tribes of hardy perennial flowers, and shall commence with the beautiful family above named, than which there are no hardy plants more deservedly admired. The colours of the flowers are mostly of the finest azure blue, or of shades approaching to it; their foliage is generally very handsome, and their height for the most part moderate. The entire habit of the family is of a handsome character. The following is a select list of the best kinds:—

1. *Delphinium albidum* (bluish-white larkspur), 3 feet.
2. " *Barlowii* (Barlow's larkspur), $2\frac{1}{2}$ to 3 feet, dark blue, shaded with purple; a fine double-flowering species, of exquisite colours.
3. " *elatum* (tall bee larkspur), 4 feet, blue and purple.
4. " *elatum pleno* (double tall bee larkspur).
5. " *grandiflorum* (great-flowered larkspur), 3 feet, fine deep blue. This is generally known in gardens as the Siberian larkspur, and is a very fine, but rather scarce species.
6. " *grandiflorum pleno* (double great-flowered larkspur), 3 feet, equally handsome in every way as the last, and much more common.
7. " *grandiflorum azureum* (light blue great-flowered larkspur), $2\frac{1}{2}$ feet, azure blue; a new variety, exceedingly handsome.
8. " *Hulmii* (Hulme's larkspur), 2 feet. This is a very large single-flowered variety, of beautiful pure blue colour.
9. " *pictum* (painted-flowered larkspur), 3 feet; a curious species, very pretty.
10. " *splendens* (splendid larkspur), 3 feet, blue, large flowers, very handsome, with large fine foliage.

Culture.—Perennial larkspurs require a good light soil, consisting of one-third hazelly loam, one-third vegetable mould, and one-third peat, the whole to be well mixed with a little pure sand. The border must be dry, the soil deep, and the situation open. Some of the strong-growing varieties thrive well and assort well with the lower-growing shrubs. They are, when grown in a suitable soil and situation, perfectly hardy. The season of flowering is from July to September, a time of the year when flowers are in great request in most gardens. As soon as the flowering season is over, cut down the flowering stems to the part where the leaves are: let these remain until they turn yellow. Sometimes, when the season is wet, they will throw up small side shoots about this time of the year or later: those shoots must not be allowed to flower, or they will weaken the roots and the next year's blooming.

Propagation.—They may be increased by seeds and by division of the root. As they sport considerably by seed you have a chance of raising new varieties; they will come into flower the second year after sowing, and, in that respect, do not impose so long a tax upon the patience of the cultivator as some other flowers. The seeds may be sown on a border in rows, in the compost above-mentioned. The month of April is the best season for sowing. Transplant the seedlings in the April following into the place where you intend them to flower. The other mode of increase, viz. by division of the roots, is the only way to keep good varieties pure and genuine. Dividing the roots is an operation requiring a steady hand, a sharp eye, and a keen-edged knife. The best season to do it in is the month of October, or as soon as the leaves turn yellow. Let every piece you cut off have at least two eyes to it and as much root as possible. Plant them half an inch below the surface in nursery rows, placing over them some kind of protection from frost, such, for instance, as decaying tanners' bark or half-rotten

leaves. The autumn afterwards they may be planted in their blooming situation.

FLORISTS' FLOWERS.

AURICULAS AND POLYANTHUSES.—Look after seedlings, and see that snails or slugs do not devour them. At this season the soil on the surface is apt to become sour and covered with a green crust; remove this carefully, and stir up the soil with an old table-fork or short pointed stick. Old plants must be protected from excessive rains. If some are observed very wet, lay them on one side for a day or two; examine the drainage, and if it is stopped up set it right by fresh draining the plants. Keep your polyanthus free from red spider. We have seen some lately almost without leaves, having been destroyed by this insidious enemy.

DRY ROOTS OF FLOWERS, such as ranunculuses, tulips, anemones, hyacinths, and narcissuses, should be frequently looked over, and such as are mouldy or decaying removed from the stock, and the affected part entirely washed off. Dry them thoroughly, and keep them in a place by themselves.

T. APPLEY.

GREENHOUSE AND WINDOW GARDENING.

ROCHEA FALCATA.—This beautiful succulent stands in the same relation to the crassulas as the Macartney rose does to the old Provence or Cabbage rose, therefore it is a true crassula; but, as they say a good tale is not the worse for being twice told, a good plant may not be the worse for having more names than seem necessary, and this is really a good plant either for a cottage window or for the palace conservatory, and one of the easiest plants in the catalogue to grow and flower. I prefer the old name *crassula falcata*, but it is a distinct section of the family, not so brilliant as the scarlet crassulas, of which there are three or four sorts, but its management is much easier to learn, as it is never pruned. After it flowers once it is thrown away like a cockscomb or a balsam, except when a supply of young suckers are wanted to increase or keep up the stock. We annually flower a few dozens of them in six-inch pots, and we find them very handy plants to put into ornamental jars and stands, to be placed in different parts of the rooms. Any situation will suit them equally well; they keep a long time in flower, and, to a stranger, they look more like artificial ornaments than actual plants, their leaves being of a greyish lead colour, and I should say from half to three-quarters of an inch in thickness, so that the name crassula suits them much better than the more modern one of *Rochea*, which is after a foreigner's name; and *falcata*, the second name, refers to the shape of the leaves, which are curved somewhat like a reping-hook or sickle—*falcatus* being an old Roman term for any hooked instrument.

Some gardeners flower it two or three years running, but I never saw one of them that way that I could fancy. If you stick one of their gouty leaves in a little pot of sand it will make a plant; but they have a famous way of making little plants, or what we call suckers, among the leaves, and all that is necessary is to cut off these suckers, or strip them off very carefully, when they have four leaves on: March is the best time for doing this, but it may be done any time from March to September. A number of these suckers is

then planted round the side of a pot in pure sand or in light soil, and they soon root. Gardeners say if they get a strong sucker of this *crassula*, or of a pine-apple, or of an aloe, or indeed of any plant that is grown from suckers, half the battle of rearing the future plant is won at the outset; therefore, when there is a choice of suckers, they always take the strongest they can find. The way we keep up our stock of them is this: after the bloom is over we take a few of the strongest plants, with healthy roots, and cut them down as far as where the flowering shoot issued from, put them under a glass—that is, in any of the pits or houses—water them once a week till November, and only once in three weeks through the winter. The stumps will soon begin to make suckers, and by the middle of March there is a crowd of them on each plant: these we take off, and sort them into sizes; the very largest are put into thumb-pots in nothing but sand, and by the end of May they get a shift into three-inch pots, and are kept close to the glass till the beginning of August, when they are removed outside, and placed with the tall *crassulas*, close under the south wall of one of the hothouses, and plunged in sand; but they are not watered, the dews, side rains, and the dampness or shelter of the sand being sufficient moisture for their leaves and roots; in short, they are now digesting the food they stored while they were regularly watered; and, if the autumn turns out a wet one, we remove them to a cold pit, still giving them all the air and sun possible, and by the end of the season they are generally strong enough to flower next year. This, then, is very similar to the treatment of the late scarlet *crassulas*; the only difference being that our *crassula falcata* is not watered in the autumn. They are wintered on a shelf close to the glass in the coldest greenhouse, without any water at all, excepting in a hard frosty winter, when there is more sunlight and fire-heat, which would shrivel them up unless a little water was given to them now and then. They would also require a little water once in three weeks if wintered in the window of a warm room.

In March—that is, twelve months after they were taken as suckers—they are potted into five-inch pots, in the same compost as the other *crassulas*, but I do not think the kind of soil is of much importance, provided it is open and well drained, and I have no doubt they would flower very well in fine sifted coal-ashes. Of this batch the whole sometimes flower, but after a wet or very dull autumn some of them grow on without flowering, and this is considered good luck, because when they make two seasons' growth their flower heads are much finer, and their suckers are also much stronger. After they are shifted into their flowering pots, they are regularly watered till they have done flowering, and a little forcing will not hurt them, but it must be given in May, and only till their centre stem begins to grow away rapidly for bloom; any forcing or confinement after that is *certain* to injure them more or less.

We must now return to the second-sized suckers, or more properly offsets. They are grown the first season in store pots—that is, about nine or ten off-sets in a nine-inch pot—for they are too small to flower well under two years' growth, and by the time they are twelve months old they are either potted singly in three-inch pots, or, if they are considered small, they are left in the store pots till the end of May, when they are planted in light soil, close to the front of one of the houses, and taken up in August, and potted at once in the pots they are intended to flower in. After all, I think this is the

best way to manage them, only I would make the rule of potting them early in August absolute.

Those who never saw this plant in bloom may be curious to know what kind of flower it is, but I cannot bring any plant to mind that I can liken it to. It is a *kalosanthus* sure enough, for *kalos* means beautiful, and *anthos* a flower; it is even more than that, for, to say the least of it, when well managed it is a most beautiful thing. It rises from 10 to 12 inches above the pot, and on the top of a central column a great number of little flowers grow quite close together, forming a circular head, flat on the top, and from three to five or six inches in diameter; the colour is scarlet and gold, and the plant is as easily grown as a common cactus, and lasts in bloom a month or six weeks.

MYRTLES, OLEANDERS, AND CAMELLIAS.—From the middle to the end of August is the best time in the year to put in cuttings of these. The camellia cuttings have been already treated on, and the other two require much the same treatment. The fashionable way of striking *myrtle* cuttings is to put a plant into a close damp hothouse early in June, so that the young shoots are as soft as those of a verbenia, and when they are a couple of inches long they are taken off for cuttings, planted in pots with sand on the top, bell-glasses put over them, and then plunged into bottom-heat. Nine-tenths of the very hard woody plants, such as is the *myrtle*, will readily strike under that excitement, but that kind of work is only fit for first-rate propagators, and ordinary people must content themselves with the old-fashioned way of slow and sure work. *Myrtle* cuttings take a long time to root, but they may be made any time from February to September. Those made now require less attention, and are more sure to root by the ordinary treatment than such as are made at any other season, and as they must be left in the cutting pots till next spring, and be watered all through the winter, the pots should be particularly well prepared for them. Six-inch pots are about the best size for them, drained with an inch deep of small cinder-ashes, then a little good mould over that for the roots to feed on when they reach down so far, and then the pot filled with a very light compost of half sand and half sandy loam. To make the pot look more tidy, a thin layer of clean sand might be put on the top, but that is not essential for the cuttings. The pot is then well watered, and put by till the cuttings are made. The reason for first watering the cutting-pot is that the soil in it will press harder together than if only ordinarily moist, and the closer the soil or the sand is made for hard-wooded cuttings, such as those of the *myrtle*, the more certain are they to root. Now, if a gardener had a large *myrtle* plant to choose cuttings from, he would only take the little side shoots about three or four inches long, with an inch or so of the bottom quite brown from being ripe; he would not cut them but slip them from the branch, and after cutting away the two lower leaves they would be ready to plant. The next best cuttings would be the top of side shoots that ripened all the way up except a couple of inches at the very top; then, by taking two joints of the brown wood along with the green tops, very good cuttings may be made. Of course these could not be made slip-cuttings like the former, but they would be cut across under the second joint of ripe wood in the usual way. The reason for taking a little ripe wood at the bottom of the cuttings is to prevent them damping in the soil, as they would be more likely to do if they were all of green wood. When the cuttings are ready, plant

them all round the side of the pot, *not in the middle*, and if you have plenty of cuttings place them so that the leaves will just keep clear of each other and no more; about an inch will be deep enough to plant them if they are made firm.

After they are all in give the pot a gentle shower to settle the surface soil all round the cuttings; place them in a shady place for the first fortnight, or, if you have a hand-glass or a cold-pit, either would do very well for them till the middle of October, but after that a kitchen window would be the best place in which to winter them: here they would need to be watered twice a week, and by the time they made an inch or two of new wood they would be ready to be changed into single pots. To do this properly, let the soil get rather dry; then turn out the ball on a board or bench, and give it two or three gentle taps with your fingers, turning it round and round all the while, by which the dry soil will crumble away without breaking the young roots. Place them now singly in 3-inch pots, in any good light compost, for young myrtles are not very particular about soil; and if you have no hand-glass, you must keep them ten days in a close shady place till they take to the new pots, and after that you can do anything with them.

There are no plants nicer for a window in winter than a couple of these myrtles—a broad-leaved and a narrow-leaved one for contrast; and when they begin to get too large you may prune them as freely as a gooseberry or currant-bush. In the growing season it is a good plan to nip off the tops of the strongest shoots, which will cause them to make more side ones, and so keep the plants bushy. If you want to make standards of them (and they look well that way also), all that will be necessary is to let the top grow away without stopping it, and all the side branches that it would make for the first three years to be stopped at the first or second joint, as I said about the tree mignonette, for on no account must a single side branch be cut off close till the top has attained the required height. When the top shoot is high enough, nip off the point of it, and three or four, or half a dozen, of the shoots immediately below the leader may be left to form the framework of the future head. To manage a standard myrtle is exactly the same thing as that of a dwarf bush. Whenever the head begins to look too open it is a sign that some of the branches want pruning to make more wood, whether the plant be a dwarf or a standard, and it is always a good plan, as I have already said, to keep nipping off the points of the strongest and longest branches all through the growing season. They like a good generous compost and plenty of water when they are good-sized plants, and a little liquid manure will give them a more glossy dark green if given about twice a month in summer.

Although, like most other plants, myrtles require little water in winter, they must never be allowed to become quite dry like fuchsias and scarlet geraniums. When they are of full age, all the heat they require in winter is merely to keep the frost from them.

As an encouragement to others to grow myrtles, I may mention that here we have many fine large plants of them, some so large, indeed, as to require the strength of ten able men to move them about in their tubs; and about eight or nine years ago Sir W. Middleton brought a dozen standard myrtles from the continent, with stems four feet high: their heads are now four or five feet in diameter; they blossom every autumn, are grown in dark green tubs,

and altogether are really most beautiful plants. They are all of the narrow-leaved sort, and I find that they are best for making standards, as they grow so much closer than the broad-leaved ones.

When myrtles are old enough to bear seeds, they ripen a quantity every year, and that is the easiest way to increase them. Seeds sown in the spring, and placed in a cucumber frame, would by this time have produced nice little plants, but they would grow very well with the heat of a common window. Now, no doubt many of our readers will think it strange that I should be so particular with such a common plant as a myrtle, but I take more pains with such subjects than with others of a higher grade, for we must never lose sight of the fact that we have undertaken to teach the alphabet of gardening, that the best gardener in the country did not know so much at one time, and that there are thousands annually entering the lists who must begin at the beginning or else be mere dabblers for the rest of their lives; therefore, although many good gardeners derive some instruction from our simple narratives, as for myself I seldom lose sight of the import of an inscription which was engraved on the mantel-piece of the school-room where I once was taught: it ran thus, in Latin, "*Mihi cept, hoc loco, doctrinam juvenutus*," which may be thus paraphrased—"In THE COTTAGE GARDENER I HAVE UNDERTAKEN THE INSTRUCTION OF THE UNINITIATED."

D. BEATON.

HOTHOUSE DEPARTMENT.

STRAWBERRIES FOR FORCING.—Inquiries thick and thickening are coming respecting the means to be taken for the forcing of this splendid fruit. Where there is, with the editor and contributor, the desire to oblige, it must be the subscriber's own fault if he does not meet with the information he peculiarly wants, so far as it is possible for limited knowledge to supply it. One thing he may rely upon, which is that if we cannot help him we will candidly confess our inability, and not mystify him with a roundaboutism which merely ends and leaves matters exactly as they were. The strawberry is propagated by seed and by runners. The first method is seldom resorted to, unless by hybridizing, to produce new varieties, and for the cultivation of the alpine kinds, which generally fruit best when raised from seed. The general method for propagating approved sorts is by runners, which are freely produced from healthy plants, one plant being the progenitor of several generations of such descendants, if it is robust in health, and the weather during the end of summer and beginning of autumn should be cloudy and dripping. I would explain the process, but an examination of the plant would be more interesting.

It will at once be seen that the runner performs much the same office for the strawberry and kindred plants that the *scape* or the *peduncle* performs for the flower of other stemless plants, only that in the strawberry a perfect plant is formed, true to the variety, from the runner, while, with some exceptions, we could only expect the *species*, not the identical *variety*, from the seeds. The strawberry, therefore, and other kindred plants present some analogy to that part of the animal world that is both viviparous and oviparous; the runner having some likeness to the former, and the fruit and seed to the latter mode of reproduction.

Keeping in mind that plants of an approved sort are what is wanted for forcing, I shall advert to several methods, all of which will answer if properly conducted, leaving to the intelligent reader the option of suiting his operations to his circumstances. All of these methods I have practised successfully, and therefore I may be supposed to hold the balance with an even hand, being prejudiced to no system whatever, but merely loving that the most which commands success and involves least trouble and time in the preparation.

The first method, then, to which I would allude is the taking up, *not* the largest, but the middle-sized and smaller runners *now*, planting them out in beds three or four inches asunder, depriving them of all runners as they grow, encouraging their growth by watering, surface-stirring, nipping off the flowers if any appear the following summer, lifting them with good balls in July or August of the following year for potting, encouraging them to root freely, supplying them with liquid manure, getting the buds ripened early in autumn, and then placing them in a state of rest, defended from wet and frost, until you wish to excite them into growth. The reason why the smaller and not the larger, the second and not the first, produced runners are chosen for this purpose is that the first would get too large under good cultivation, and in the circumstances would not be so apt to flower well as the second. So far as I have been able to determine this appears a matter of some importance. It will be seen that this method is merely an improvement upon the original system of going to the strawberry quarter and lifting what plants you consider most suitable. In either case, if you have plenty of choice, choose those plants possessed of one strong bud or centre in preference to those having two or three prominent buds: the latter seldom spur well in early forcing; for late work, that is, starting them in March or April, they will do very well. The great thing is to get the pots full of roots, and the buds first ripened and then rested, before you proceed to force them. Although involving more time and labour, I have not found the system preferable to that detailed under method third.

As an instance of what may be done in unfavourable circumstances I may mention that once in the end of October I ascertained that it would be desirable to have strawberries in the following March and April, but no preparations whatever had been made, and a motley mixed lot of old plants were all that existed to choose from. Those possessing the boldest well-ripened buds were chosen, taken up, and potted, and immediately plunged to the rims in a slight hotbed made of leaves, sweepings of the lawn, &c., in order that new roots should be formed in the pots, care being taken to leave the tops of the plants completely exposed, unless in heavy rains and severe frosts. Here you will observe two principles were attended to:—first, as the buds were already ripened, the object was to obtain roots that would supply the means for the expansion of those buds when the pots were placed in a house with a higher temperature; and, secondly, the plunging in the bed, while the top of the plant was exposed, brought the roots *rather* in advance of the top, a principle not sufficiently attended to in early forcing. The pots when examined were crammed with fine healthy roots at Christmas, and produced a very fair crop in March.

The second method I would refer to, and highly recommended by some, is using the plants forced this year for forcing again the next; watering them during summer, keeping them clear of runners and

weeds, removing part at least of the old soil, and shifting them into the same sized, or larger sized, pots in July or August, watering, shading for a few days, and then exposing them on a hard surface to the full influence of the sun, for accelerating the ripening of the buds. Reasoning from analogy, I once had high hopes of this system; I found that in the case of other plants, the longer they were forced the easier they were to be excited. As one of the first to plant out largely forced plants for the forming of the general plantations of strawberries, which not only may give you a fair return of fruit in the autumn, but a produce next summer so extraordinary as not to be equalled by any other system of planting, I thought I might as well secure some of that vast abundance in the forcing houses. Now, though from following out this method I have had fair success, yet that success did not come nearly up to the high expectations I had formed.

For general purposes, I therefore approve of the third method, such as has already been referred to in these pages, namely, layering the runners of the present year's growth, in July and August, into small pots, to be shifted into larger; or placing one or more runners into a six-inch pot, in which it will produce its fruit. One plant in a four or five-inch pot, commonly called 48s., will produce plentifully for the first crop. Many prefer having three plants in a six or eight-inch pot. When convenient, I prefer layering in small pots of from three to three and a half inches, usually termed 60s.; cutting the runner, and shifting into larger pots when the first is crammed with roots, because there is a tendency with the strawberry to send its roots to the outside of the pot, while the repotting method secures the filling of the pot with feeding mouths from the centre to the circumference. If you can obtain runners from forced plants they will be best. In layering, all you have to do is to bring your pots, drained and filled with soil, to the strawberry ground, lifting the young plant as soon as you can hold it conveniently, and fastening it in the earth in the pot with the thumb and a couple of fingers, and then placing a small stone on the layer in the pot, to prevent its being blown out by winds. The use of retaining the string or runner is to support the young plant until it forms roots for itself. If at this advanced period your young plants are rooting in the garden soil, save the roots carefully, and pursue a similar method, at least so far as your early crop is concerned. Allow no runners to come from your young plants in the pots, and as soon as possible give them their final shift, and set them fully exposed to the sun until you remove them to their winter quarters, choosing and placing by themselves, then, the forwardest and ripest plants for the first crop. Where you wish to have a regular succession, have no end of pots, and can command glass or other material to keep the plants dry in winter, you may consider yourself fortunate, and should pot as many as you think you will want. As I seldom possess either of these conditions, and as pots not protected from wet are apt to become water-logged in the spring, in addition to those in pots I prick out a great many in beds as soon as the roots of the runner begin to peep, shade them from bright sun for a short time, and then, for all but the first crop, commenced in December, they are ready to be taken up and potted when wanted, requiring no protection in winter but sticking a few branches of spruce or laurel amongst them. The beds are previously well prepared with rotten dung. Before placing such plants

in the forcing house after potting, they require to be put in a little bottom-heat for a fortnight, as before described. For late forcing, such plants are frequently taken up and planted out in a slight hotbed, where they generally produce plentifully. I have, however, more than exhausted my space upon preparing—the storing and forcing must form matter for another gossiping. I must, however, be indulged with a few words more, and first as to suitable kinds. Kean's Seedling still maintains its supremacy as the best forcer and the most abundant bearer. The British Queen is a fine-flavoured noble-looking strawberry, but second-rate as to bearing, and should not be forced until the end of January. The old Aberdeen Roseberry is a free bearer, forces well, but the fruit is small, and when forced early not high-flavoured. I have had them looking well at Christmas: I will say nothing of their taste.

Secondly, the soil should be fresh good loam, with a sixth part of rotten dung, dried and free from worms; if stiff loam, a sixth part of rough lime rubbish will be an advantage.

Thirdly, drainage must be well attended to, and yet worms be excluded from the bottom. Place a piece of potsherd with its convex side over the hole in the pot, above it fully an inch of smaller pieces, then a little green moss to prevent the soil mixing with the drainage, and a sprinkling of soot, which will act the double purpose of a vermifuge and a fertilizer.

Fourthly, potting. Pack the soil rather firm, but be sure that the centre of your plant stands out free: it must not be buried at all.

Fifthly, watering. Weak, clear, liquid-manure, made from soot and guano, I like best, used alternately with clear water: they must never know what it is to flag. In rainy days the pots should be turned over on their sides.

R. FISH.

THE KITCHEN-GARDEN.

As soon as the young *cabbage plants* are large enough to manage prick them out thickly, so that they may be strong and vigorous for permanent planting. Encourage the growth of *broccoli*, *kales*, and *winter greens*, as well as *coleworts*, by frequently stirring the surface about them, first clearing away all the yellow leaves, which, if allowed to remain, have not only an untidy appearance but also afford a refuge for broods of snails and slugs. A little slaked lime should be cast about over all the young crops of vegetables early in the mornings, or late in the evenings, to prevent the attacks of these pests; and baits, either of brewer's grains or of new bran, should be laid in small quantities to entice them in numbers together, when they may readily be destroyed. The grub family are also very numerous at this season, and will be found for the next few weeks very destructive to all fresh planted vegetables, if not well searched for and destroyed.

Cauliflowers may be sown to stand the winter, by those who may not possess the convenience of hand-glasses or lights, if a good, dry, healthy spot of ground be chosen, after the 20th of this month. Those who have the above-named advantages will do well to defer the operation until the middle of September, for, if the weather in the autumn should be mild and growing, the plants are apt to become too luxuriant and too large; are liable also to severe checks in winter and in the early spring months;

and when planted out at the beginning of the growing season, instead of progressing favourably, they are likely to start, or button, showing at once a diminutive flower of no use, and causing only disappointment after all the previous trouble and expense.

Lettuces and *onions* should each have another sowing made to stand the winter, as well as the early quick growing kinds of *turnips*, such as the *Early Dutch*, *Stone*, and *American Early*. Another sowing also of *parsley*, which will be found to stand without running to seed until next spring, and will supply the vacancy between the seeding of the early sown, and the coming in of that sown in spring. *Parsley* sown last spring, and which has now become strongly established, should have a portion cut back in succession, so that it may furnish plenty of luxuriant curled foliage for winter use. *Parsley* may be astonishingly improved by the application of chimney soot in showery weather, or applied, as is best and most economical, in a liquid state.

Radishes and *small Salads* should also now be sown in succession.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 40.)

AUGUST is the month in which our annuals are in full beauty. When the rose ceases to bloom, which is the case, with some exceptions, when July closes, the gay variety of annuals hasten to spangle the borders, as if to compensate for the loss of the queen of flowers; but nothing can make up for the departure of the moss and cabbage rose. Those roses which still bloom on are delicate and gay, and we cherish them because they are roses; but they are comparatively scentless, and neither their size nor form are so fine as those treasures of the earlier months. As July departs I take my first farewell of my garden, for when the roses and honeysuckles are gone I have little to brighten it, as annuals do not bloom handsomely in my soil. The bloom on the honeysuckle has been extremely fine, and has lasted till quite the end of July, which it has never done before. The early promise of blossom was destroyed, and I much feared they would not recover from the unexpected check; but they soon and completely rallied, and came into flower the first week in June, exactly one month later than their usual time; since then the dry weather permitted them to bloom in peace, and they have been one mass of sweetness and beauty for nearly two months, through all the fine summer days, when they could be fully enjoyed, for in other seasons I have lost half my enjoyment in consequence of wet and cold weather in May. Perhaps some experienced gardener would inform me, through the medium of THE COTTAGE GARDENER, whether I might with safety cut off the early buds of my honeysuckles, so as to throw them into flower always in June instead of May.

Some of our annuals come from afar, to ornament our autumnal gardens, and can speak usefully to us with their silent "voices." Perhaps the cottager does not know that the fragrant flower we all so much delight in, the quiet looking mignonette, comes from the "land of Egypt"—that land so wonderful in its history, so full of scriptural interest, so awfully impressed upon our minds from our earliest childhood, and yet so highly favoured in its glorious futurity! This little

simple plant sprang from the plains that echoed the "cry" of the captive children of Israel, which "came up unto God by reason of the bondage;" those very plains that witnessed so many miracles, such awful judgments, and such protecting love: where, in a more glorious day, the Saviour's infancy was passed, and from whence at length "God called His Son." How endless and how blessed is the tale this little annual tells! Surely it should bloom in every garden to remind us all, as we enjoy its perfume, that to this day "the Lord's hand is not shortened that it cannot save; neither his ear heavy that it cannot hear;" that the "covenant" and the promise are "to us and to our children;" and that "happy is that people who have the Lord for their God." In these days of national judgment, when the destroying angel is passing over our land, let us remember Egypt; let us use the means God has appointed; let us strike "the blood of the lamb on the lintel and doorposts" of our hearts, and in faith and prayer await the dawn of our deliverance. This interesting plant has been seen in a wild state in Barbary also, but it is supposed to have been deposited there accidentally, or blown by the winds from the gay gardens of the Moorish palaces. It was first brought into England in the year 1752, and soon became a general favourite. Although of such comparatively recent introduction, we seem to consider it quite a native plant, and, wherever the traveller may chance to find it, it will ever cause his heart to spring back to his island home. By the ancients this plant was termed "reseda," from *resedo*, to allay; because they applied it to wounds to suppress irritation. Possibly it might still be employed with good effect even in these more scientific times, for the "simples" of earlier days were remarkable for their healing powers. The French appropriately call it "laesese da d'Egypt." Let the cottage gardener cultivate with double interest the flower of that scriptural land.

The convolvulus major comes to us from America, where it twines itself round the lofty trees in richness and beauty. How an American must smile when he sees the luxuriant climber of his own vast woods twisting itself in our gardens round a stick! Yet even in this imperfect state it is a lovely and graceful plant, and its elegantly formed flowers of purple, pink, and white, look beautiful among the rich clustering leaves. The little wild creeping convolvulus, and the large white variety that decks the hedge, are both lovely in form and tint; the former nestles among the grass, spreads itself by the road-side, decorates the banks, and twines round the bean and wheat stalks. Its numerous pink flowers look bright in the sunshine, but they very soon close their beautifully-folding petals, like miniature umbrellas, till the sun's full radiance again permits them to expand. The white climbing convolvulus is, I believe, correctly called the "bind-weed;" it infests the garden sometimes, and is very troublesome in mine, and difficult to destroy; it runs rapidly with many wiry stalks up rose trees and other shrubs, smothering the flowers, and destroying much of their effect; and then it is so closely wound round the stems that without much care both leaves and buds will be torn off before it can be removed from them. Where it may safely grow, it is an addition to the garden, but not when springing up among the border plants. Our common sweet pea, too, is the native of a distant land, and a far sunnier clime than ours. The pink and white variety is found in Sicily, but the rich purple pea grows wild among the beautiful woods of the island of Ceylon, mingling its delightful

odour with the aromatic fragrance of that teeming soil: it tells us of a land full of richness and beauty, whose perfumed gales reach the approaching ship before the sailor's eye can see its shores; it tells us of unclouded sunshine, yet heathen darkness,—of abounding treasures, yet no "true riches,"—and it speaks "a word in season" to those who do not *openly* bow down to wood and stone. Even in a Christian land, a land of pure gospel truth, *we may be idolaters*. Let a sweet simple flower, brought from a heathen soil, remind us of a deeply important scriptural command, "Beware of covetousness, which is idolatry."

SCRAPS.

BEAUTIFUL BRITISH PLANTS.—*Lychnis viscaria* (Rock Lychnis).—A rare and beautiful perennial, herbaceous plant, with bright rose coloured flowers in June and July; thriving equally well on rock-work or the flower border.

Lychnis alpina (Red Alpine Champion).—A very interesting little Alpine plant, growing on the highest of the Scottish mountains; best grown in pots, where it requires little attention. Our plants seed very freely, which we find the best method of increasing it. Propagate by division of the roots. The plants are never of long existence.

Lychnis flos cuculi (Ragged Robin).—Of this beautiful denizen of our marshy meadows, there is a double white variety in cultivation, worthy a place in every choice collection.

Lychnis diurna (Red Champion).—We mention this common plant of our hedge-rows merely to bring into notice the double variety, which is a most beautiful and showy plant for the flower border.

Arenaria verna (Spring Sand Wort).—A very useful rock plant, with small narrow leaves, and rather large white flowers, found sparingly in the higher parts of the counties of York and Durham; we have met with it near Widdy Bank House, Upper Teesdale; it is also said to be found by the side of the Wear, below Stanhope.

Malva moschata (Musk Mallow).—A very showy plant, with deeply cut leaves, and large rose-coloured flowers, found occasionally on dry gravelly banks. We have a white variety in cultivation, which blooms more profusely than the parent species, and comes true to its kind from seed.

Hypericum calycinum (Rose of Sharon).—This plant, though only naturalised in the British Isles, is well deserving of cultivation; it is an excellent plant for the edges of the shrubbery in shady places, with its large solitary yellow flowers.

Hypericum androsaemum (Tutsan).—A very fine shrub, growing from two to three feet high, with large terminal cymes of yellow flowers in July. We have met with it occasionally in woods in the West of Yorkshire.

Hypericum perforatum (Common St. John's Wort).—A very fine plant, found plentifully in woods and hedges in a gravelly soil; the leaves are covered with pellucid dots, which are beautiful objects for the microscope.

Hypericum montanum (Mountain St. John's Wort).—Another of those interesting St. John's Worts, which will well repay the attention of the cultivator. It is rather a local plant; we have found it plentifully in Mackershaw Woods, near Ripon; Castle Eden Dene is also a station where it is found.

Hypericum pulchrum (Small Upright St. John's

Wort).—This pretty plant, with its small heart-shaped leaves, and yellow flowers with red anthers, should be grown by every lover of our native flora; it is a very elegant species. It is found on dry heaths, banks, and woods.

Polygala vulgaris (Milkwort).—A beautiful dwarf spreading plant, found plentifully on dry hilly pastures, with abundance of bright blue, pink, or occasionally white flowers, and thrives well on dry rock work.—*Durham Advertiser*.

TO CORRESPONDENTS.

GREEN ALPINE STRAWBERRY (P. F. M.).—This is the *Green Strawberry* of the Horticultural Society's Catalogue. You can obtain it, probably, from any nurseryman near London who devotes much of his attention to strawberry culture.—Mr. Myatt, Mr. Wilmot, and Mr. Cuthill, for instance. You will find an excellent mode of cultivating Alpines at p. 373 of our first volume. The Green Alpines require no particular culture except cutting off its runners as fast as they appear.

GAS LIME AND EARTH (J. M. P.).—A mixture of these, about one bushel of the lime to every five bushels of earth, and well incorporated by turning over two or three times during two months after mixing, will make a good compost for your ground. You will see in our last number how Mr. Barner says about transplanting Swede turnips; they will do well after your early potatoes. You cannot do better than plant coleworts on the ground from which your mangold-wurtzel will be removed. You may now sow poppies, sweet-williams, and wallflowers.

DOUBLE-POLOMOMEN FURZE (Uter).—This will not blossom though planted in your border at Camberwell. The only reason we can suggest is that the soil is too heavy. Take up your plants in the autumn, and mix a large quantity, full one-half, of road scrapings with the soil in which you replant them—it cannot be too light.

TRAINING-STRAWS (H. Beckwith).—Your plan of having eyes fastened into the wall instead of nails, as recommended at p. 321 of this volume, is better, inasmuch as that it is easier to tie to an eye than to a nail, but they are more expensive. Giving "all the parts of the studs exposed to the air two or three coats of naphtha varnish" is a good suggestion; but we do not know, as you say, that "it is a cheap preparation, and far more permanent than the paints with metallic bases usually adopted."

BROMHEAD HALL MELON (T. W. Lewson).—We are obliged by your correcting our unintentional error, and we cannot do better than give this extract from your note:—"You state that Mr. Bundy, gardener to Lord Ynevior, had the prize for the best flavoured melon at Chiswick.—'Cuthill's Scarlet Flesh.' The name is incorrect; I took the fruit up for him, and it is a new melon raised by him and his father at the seat of the Hon. George Rice Trevor, Bromhead Hall, near Bedford, and therefore called by Messrs. Bundy, 'The Bromhead Hall Melon.' It is a green-fleshed variety."

PERPETUAL ROSES (R. Stratford).—You will find a list of the best for bedding out at p. 56 of the present volume. Of *Damask Perpetuals*, the best are *Antique*, *Antioch*, *Bernard*, *Le Page*, *Madame Thelier*, *Magnolia*, *Portland*, *Elsie*, *Rose du roi*, and *Rose du roi panachee*. Of *Hybrid Perpetuals*, *Auburn*, *Baron Prevost*, *Coronet*, *Dr. Marx*, *Duchess of Sutherland*, *Geant des batailles*, *La Reine*, *Louis Buonaparte*, *Madame Lafay*, *Robin Hood*, and *William Jesse*. The above are in addition to those you have—*Aime Vibert*, *Albert*, and *River*.

NAME OF ROSE (J. B. L.).—Your "Amelia du Village" is perhaps *Ponette nouvelle*, written badly. We are sorry that we cannot aid you in getting the buds of hybrid perpetual roses.

SEMAC (S. E. S. Bridgenorth).—If you mean the common or elm-leaved semac, it is a native of the south of France, and is found in the cultivated in this country for more than two centuries. Turkey leather is tanned chiefly by means of its twigs and bark; its leaves and seeds are used in medicine as astringents, and in Turkey as a stomachic to promote appetite. It is usually propagated by suckers planted in autumn, and if the soil is light and well drained, and the plants are mixed with others in the shrubbery, it endures our hardest winters without even its young twigs being injured.

DAWK CLIMBING ROSE (W. R. L.).—You require this to climb over a rustic verandah at your R. L. You will find it on the white sides of your cottage. The best dark-coloured rose climber, and the only one we have of that colour, is the crimson *Boursault*, a rapid grower, that will thrive in any ordinary border, but, like the rest of the summer climbers, its flowering season is soon over. We recommend you to plant a *Gloire de Rosamond* on one side of it, and *Madame Lafay* on the other side. The former is a semi-double rose of striking beauty, and the other one of the best hybrid perpetuals: both will flower till late in November. Two-year-old plants of all of them, and on their own roots, we should prefer, and would plant them at the beginning of November. The true hybrid will reach up ten feet in four or five years, if the border is good, and abundance of water given them in summer.

CREEPER FOR BACK WALL IN VINERY (A Merionethshire Gardener).—*Mandevilla saxeolens*, if the back wall is not too much shaded, is the best creeper you can plant. If the vine is not much forced, and the border is good, it will bloom from the middle of July to the end of October.

LATE STRAWBERRY FOR N. WALES (H. bid).—The Elton, by all means, with the red and white Alpines reared every year from seeds. September is the best time for you to sow the Alpines to be planted out next April, when they will fruit abundantly next September and October. In a more genial climate they do very well if not sown till February. Keep down their runners, and water them well in August if the weather is dry.

MELON FOR N. WALES (H. bid).—*Flemming's* hybrid is the easiest melon to grow we know, and one of the best flavoured ones. It will probably be advertised in our columns next spring; at any rate, any seedman can procure it for you.

GREENHUS (E. B. W.).—The leaves have lost their dark veins, and have become uniformly green. We cannot say what is the cause of this change, nor have we heard of it before. Try them in the rough sandy peat—the whole tribe flourish in that as well as in the best made compost.

FUCHSIA CORYMBIFLORA (H. bid).—Three-year-old seedlings of it ought to flower this autumn. It is a shy bloomer and ordinary management. The best way is to make plants of it into half standards, with naked stems three or four feet long; to prune their heads as close as a pelargonium before they go to rest in the autumn; and not to shake the old soil from their roots like other fuchsias in the spring, but only once in three or four years; to have them in smaller pots than are generally used, and when they show for bloom to give them abundance of rain water; they never want stimulants.

HYBRIDIZING HOLLYHOCKS (M. E. S.).—The hollyhock is easily crossed; the membrane in the flower from which its stamens proceed completely envelopes the styles, and they do not issue from this covering for some days after the opening of the flower. In such flowers there is time before the styles issue from this covering, either scrape off the stamens from the central column with a penknife, beginning at the bottom, or the stamens may be cut off with long pointed scissors if you prefer it. In either case see that none of the cut anthers remain inside the flower. By-and-by, the styles, which in number are indefinite in this flower, issue forth from the top of the envelope, and when they are ripe for the pollen they bend downwards in search of the anthers. At that stage, and not before, apply the strange pollen, which is easily effected if you cut out the central column from the strange flower with ripe pollen on it. Then apply the pollen masses backwards and forwards and in among the numerous styles; after crossing, the flowers ought to be guarded from bees and other insects. You should also bear in mind that *all* flowers which have a tendency to sport by seeds will not hear to be violently crossed, that is, that a dark should not be crossed with a light flower. In such flowers there is always a better chance of an improved offspring if the two parents are as nearly as possible of the same colour or tint. A violation of this rule is the fertile source of much disappointment every season.

PINE APPLE CROWN (F. G.).—These being in good condition from the time you cannot do it, you should not be so anxious to dig-hung in frames, more especially as you say that you have abundance of good dung. Such plants are very often infested at the axils of the leaves with scale and bug, and the steam from the dung will be one of the most effectual means for eradicating these. It will be advisable, therefore, not to sweeten your dung, but to keep it fresh for a month or six weeks to come, so that you may have plenty of steam, which, though strong, the pine will stand, and which the insects cannot. Let your atmospheric temperature during the day range from 70° to 95°, and at night from 65° to 70°. If your bottom heat is above 95°, set your plants on the surface after they begin to root. Your chief trouble will be in winter, but even that will be trifling with your supply of fermenting material. In the cold short days a temperature of from 50° to 65° will be sufficient. The great thing is to diminish the steam as the days shorten, so as to have as little as possible in winter, the heat then being produced by linings up to the very top of the frame, which will thus warm the atmosphere of the enclosed space without giving you too much bottom heat.

FUMIGATING BEES WITH FUNGUS (C. R. R.).—Neither fungus nor tobacco will either discolour or impart an unpleasant smell to the combs, if the bees are laid separately and exposed to the air in a room for a few hours after the operation.

MAKING A STRAWBERRY-BED (H. T.).—The best preparation is deep digging and a plentiful manuring, adding some adhesive loam if your soil is sandy, and sandy soil with drainage if your ground is heavy. The kinds are enough for any garden, but the best are the present:—The best early is *Kent's Seedling*; second in succession, *Eliza*; third, *British Queen*; fourth, *Elton*. Alpines may be planted on an elevated bed in March; these will succeed the others through August, September, and October.

WOUNDING A BARK OR APPLE-TREE (Rev. E. T. Yates).—Cut out with a very sharp knife all the wounded part, so that both the wood and the bark of the entire wound may present a smooth free surface. Before doing this have the following composition ready, and apply it immediately, covering the wound thickly, and if the covering cracks fill up the cracks with a fresh dabbing with the same. It will be well to continue moist from its own juices and to exclude the air and rain. One bushel of fresh cowdung, half a bushel of lime-brush (from cuttings of roses is preferable, or powdered chalk), half a bushel of wood-ashes, one-sixteenth of a bushel of sand, the three last to be stirred in the whole to be to the weight of the cowdung, together with drainings from a cow-hed until they form a firm plaster.

POTATOES SPROUTING IN GROUND (J. F. Hulsehead).—If the stems of these are still green and vigorous let the potatoes remain, but if the stems are yellow take the potatoes up immediately, and store them in a dry place, where they will alternate with the winter garden.

LEAVES OF RED BEET (J. P. R.).—The outer of these may be removed now without detriment to the root, but the removal will not increase its size. We cannot too often impress upon our readers that leaves are the organs which prepare matters for the growth of plants. It is not necessary to spray necessary to spray them so much, but much improved by it. It is injurious to cut off a portion of the stems of tall-growing *Jerusalem Artichokes*; they only are thus induced to

exhaust more sap in throwing out an abundance of lateral branches. *Gutta percha tubing* is excellent for conveying water into a garden. We use it ourselves both of one inch and half-inch diameter. Watering *strawberries* regularly in dry weather is highly beneficial in improving their produce. For this purpose it is very injurious to *potatoes*.

ASPARGUS SEEDLINGS (*W. H. Cheetham*).—Let them continue untouched until their stems are dead, giving them now a good sprinkling of salt, and a weekly soaking with strong liquid-manure. Cut down the stems in the winter and cover the bed with manure. In the spring, about May, when the stems make their appearance, give another sprinkling with salt, and liquid-manure weekly. Repeat the winter treatment, and in the following April they will be ready for planting. *Sea-kale* seedlings may be treated similarly, but they had better be cultivated in the bed where raised from seed. If moved, let them be so this autumn. Now is a good time for propagating the *onion* by slips, and by making *strawberry-beds*.

USEFUL-HIVE BEES (*G. J.*).—You were obliged to increase the room in a round-top-hive by placing a flat-topped hive *under* it, and you ask the amount of risk if you take the former away?—The amount of risk will be that of the entire destruction of the stock, for the queen will be in the upper hive, and should you succeed in dislodging her there will not be sufficient honey in the lower one to support the bees during winter; the best method to adopt will be to separate the hives and take away the *lower* one, which perhaps may contain three or four pounds of honey. After separating the hives remove the lower one to a little distance, and the bees will leave it in about 30 minutes and return to the upper one. The lower hive will, in all probability, be found to contain a very empty comb.

POOR GRAVELLY SOIL (*E. L. B. Charlton*).—Your gravelly soil wants tenacity. This can be given by means of either marly or clay dressings. Plenty of what is termed "greasy peat," also, will prove of much benefit, or, indeed, any vegetable matter, even sawdust. The latter articles are, however, not enduring or "lasting," and the only permanent basis of improvement is the man or clay. Your soil should produce peas, carrots, parsnips, mangold, kidney beans, and, perhaps, dwarf cabbages. Usually, very early and very late crops will suit best: we fear the middle of summer will try you severely. With regard to your fruit-tree borders, as yours is a case of severe need, we fear you will be compelled to stop to within one yard of the wall; try and give up the last yard. You may dig as deep as you like on the one-half next the wall, but on the next three feet your spade must never go above six inches on any account: we have grown capital crops for years this way—the deep rooting crops on the outer half, and such things as peas, carrots, kidney beans, and even dwarf matchless cabbages, on the shallow-dug portion; using manure freely, and elevating the three-feet-wide portion several inches above the ordinary border surface. You will thus have at all times two distinct modes of cropping on the same border, and a little extra manure will be the equivalent of many manure applications. As for your standard apples, you may either leave a bare circle, or lay it down in turf. Do not, however, bring any spade culture nearer than six feet from their stems.

VINE-LEAVES TURNED BROWN (*Thetis*).—We do not deem your's a case of blight; a bad root-disease, however, the autumnal purple tint on the leaves is quite familiar to us, as frequently accompanying a premature and false ripening, caused by an insufficient supply of sap from the roots. We have known many vines which would blossom, set, and swell off tolerably fair, but when the greatest demand was made on their root action, which is about the time that they commence their last swelling for ripening them, suddenly they give way, and the leaves become discoloured. A bad-rooted vine may be told by an experienced eye in an instant, merely by comparing its foliage with any good-rooted ones; and this from the walk in front without going into the greenhouse. You must alter your border; ample directions will appear in *THE COTTAGE GARDENER* before the year is out. Nothing can be done to assist you now.

IMPROVING LIGHT SOIL (*A Young Reader*).—You can only improve the staple of this by adding to it a thick covering of clay and chalk, incorporating the soil with it thoroughly; manures then will be more lasting when applied.

TABACCO (*Leylandensis*).—The time for gathering this to dry for fumigating purposes is as soon as the leaves are full-grown and look yellowish green. Cut down each plant just within the ground, and leave them on the bed to rot, or hang them up if fine, to dry, to hang them in a heap every night. When quite dry hang them up in a dry place, and take the leaves for use as you require.

THINNING VINE LEAVES (*Ibid.*).—Taking off every leaf opposite a bunch of grapes? We think cannot be right under any circumstances; but you are always unwilling to count a gardener's practice until we know all the facts, or have seen the plant he has operated upon.

MESSEMBRYANTHEMUM (*W. J. Clapton*).—Your plant requires very little water, and is best treated as a cold-frame plant. The cause of the leaves turning brown is the want of proper watering; but the pot, or being left out on cold nights, which were so frequent this season.

CLIANthus FUNICUS (*W. X.*).—This is not a climber, but is a good plant to train against a wall like a peach tree. Your gardener is right, it is very liable to a red spider—but what plant is not if the insects are allowed a footing?

SUTRELANDIA FUTEUCENS (*Ibid.*).—Propagate this by seeds, which it ripens in abundance. The best way to use this plant is as an annual, sowing the seeds in peat early in the spring, and turning out the plants when the May frosts are over; or as biennials, when they would flower a month or two sooner.

TWEEDIA CEREUEA (*Ibid.*).—The cold winds injure the flowers of yours, turning them of a bronze hue; it is a beautiful blue flower, but one of the worst to grow well in a pot; all its young wood should be pruned down to three or four eyes early in the spring, but stopping the points afterwards does it little good. If pruned in the

autumn, as you suggest, it might begin to grow again, and so be good for nothing next season.

EARLY ROSES AS STOCKS FOR AUTUMN ROSES (*Ibid.*).—If your early-flowering roses against a wall are strong and healthy, no doubt autumnal roses would do to bud on them, but we would not recommend the plan generally as you propose, for unless the two or more kinds happen to be of the same constitutional vigour, the strongest sort would starve the other. Madame Laffay, Baron Prevost, and Duchess of Sutherland, are the best autumn roses that you can buy cheap; but if you refer to back numbers you will see many more of that class. We do not think that the great rose growers would send you cuttings for budding from; it would hardly pay for their men's time for gathering, naming, and packing them.

FRESHMAN YELLOW ROSE (*A Constant Reader, Worcestershire*).—This, you say, blooms badly and uncertainly, which must arise, we think, from its being on a bad stock, for it is not particular about soil. Bud it now on an Austrian brier, or on the Boursault rose, or on the large old China rose, or on any strong-growing kind of the China varieties. It does not flourish if budded on the common dog-rose, and in some soils it will not do on its own roots. We find it succeed best on the Boursault. It does not require pruning, but the weakest shoots to be cut clean out.

CAMELLIAS IN OPEN AIR (*Ibid.*).—We know your place very well, and in 1829–30 had camellias in the open air without any protection whatever, half way between you and the "Man of Ross." That was a most severe winter, but our camellias flowered the following May, as camellias always do in the open air in our climate, that is, not worth looking at. They will do just as well at Faversham as in any part near Ledbury. It is not the rigour of our winters that is so much against them, but cold easterly winds in April and May when they are in bloom; and unless they are artificially protected, and that very carefully at that season, they will not produce a healthy blossom out of a hundred. The end of May is the right time to plant them out, or as soon as their growth is nearly finished. The ground should be light, with a heavy covering of manure, and the plants should be not more than net younger than five years. Knowing your locality we would not advise you to plant them out at all. Sprinkle lime or soot, or both, about your hothed, to destroy the snails.

SCARLET GERANIUMS (*Rev. C. W. Green*).—These, especially the *Fragmure*, are very vigorous, but produce very few blooms in your open beds. Cold nights and rich soils are their great enemies; they are not the cause, then the *Fragmure* does not suit your soil. No plants are more capricious as to soil than scarlet geraniums. *Tom Thumb* would be most likely to succeed with you. We have been obliged to discard both, but the *Fragmure* would not carry a healthy leaf with us. Our soil is very dry and chally.

BEE HIVES (*An Original Subscriber*).—The size of the hole in the small hive and boxes used by 30 bees, and your insect in danger. G. Neighbour's "Improved Cottage Hive, No. 7," is constructed to work five glasses of a pint each; the price is 21s. 6d. The best manner of managing this hive is to put an early swarm into it (a May one), and then in about 14 days place the glasses upon it, turning aside the fine covers placed over the holes; and when a glass is filled take it off and replace it by an empty one: a good swarm in one of these hives will afford two such glasses per week during the honey season. It is desirable to fix a piece of guide-comb in each glass. It is not a *bell-glass*, that Mr. Payne has had made, but one to place under a bell-glass, as described at p. 165. The price is about 2s. 6d. or 3s. No ventilator is attached to this glass.

LETITUDES TO STAND THE WINTER FOR SPRING USE (*J. W. G. Derchom*).—The old Egyptian Hardy Brown Cos is not only the best but is at all seasons superior in flavor: the hardest cabbage lettuce is the Hammerhead. Two or three sowings of each should be made this month and beginning of next, and pick out the largest plants at six or eight inches apart, and from the middle of October to the middle of November select and plant out on sloping banks, which should face on one side the south or south-west, as the sun is likely to injure the plants in early spring, before the earth is thawed, if planted over the winter, causing them to rot, or even to die in the soil. Dry cipher-ashes will be most useful in protecting the plants if dusted over them on winter evenings, when the soil is saturated with rain or melting snow, and frost may be expected; it will also be beneficial in draining the soil, if of an adhesive character, and the ashes are applied in sufficient quantity. In a dry district, indeed, it is useful to sow winter crops as a protection from frost. Late rubbish, sweepings of wood, peat, or turf, and even common road dust, will all be found useful in winter for this purpose. We char a great deal of earth, sawdust, old tan, and other refuse, which is still more valuable, as the application of these in spring acts for both winter and summer use. It may be the American, or as some call it, the Land-cress, if it were sown on a fresh spot every year, as it is not eatable after it starts to seed. Next month is a good time for sowing *Normandy cress* two or three times. This is picked like parsley.

WEEKLY CALENDAR.

M D	W D	AUGUST 30—SEPT. 5, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
30	Th.	Red Bryony berries ripe.	Guernsey Lily.	11 a. 5	50 a. 6	1 30	12	0 27	242
31	F.	Peaches ripe. [seen.]	Autumnal Pheasant's Eye.	13	48	2 30	13	0 9	243
1	S.	Giles. Clouded Yellow butterfly	Common Orpine.	15	44	3 34	14	0 10	244
2	SUN.	13 SUN. APT. TRIN. Chaffinch sings again.	Golden Rod.	16	43	rises	15	0 29	245
3	M.	Meadow Saffron blooms.	Common Fleabane.	17	41	7 a. 13	16	0 48	246
4	Tu.	Horticultural Society's Meeting.	Common Soapwort.	19	39	7 39	17	1 7	247
5	W.	Old Bartholomew. Hawthorn berries ripe.	Common Mushroom.	21	37	8 5	18	1 27	248

SAINT GILES, or Egidius, was born at Athens, but passed into France during the year 715, and became a disciple of Cæsarius, bishop of Arles; subsequently a hermit, and finally promoted to be abbot of a monastery at Nîmes: he died at this place a. n. 790. His extreme charity, and his refusal to be healed from a lameness, that he might not be without "this thorn in his flesh," caused him to be addressed by Roman Catholic mecenats and cripples as their patron saint. The churches dedicated to him were the favorite resort of the beggarly fraternity, and our St. Giles' Crippleage, in London, even before the Norman conquest, received its name from the miserable objects who there assembled to solicit charity.

OLD BARTHOLOMEW is the day on which the festival of St. Bartholomew was celebrated before the alteration of our calendar. It is now kept on the 24th of August. The alteration of the calendar was rendered necessary for the purpose of making the civil year agree with the natural year, or that period of time in which the earth travels round the sun. To effect this, in the year 1752 eleven days were omitted between the 2nd and 4th of September, so that this month contained in that year only 30 days. Another alteration was effected the same year by making the annual round common on the 1st of January, whereas, before the passing of the law (24 Geo. 2. cap. 23), the year began on the 25th of March. The omission of the eleven days caused great discontent among the ignorant, who complained that Parliament had robbed their lives of those eleven days! These alterations comprise the difference of what are distinguished as the old style and the new style of annual computation.

PREMONING OF THE SEASON.—The return of the first of September brings to memory many anecdotes of the partridge and the snipe which were fatal to us in days gone by, and a few of which now may be recorded aptly. No bird has more enduring courage for the security of her eggs and young ones than the partridge. When near the time of hatching, the hen will remain upon her nest with a pertinacity unequalled by any other of our wild birds, and regardless of the approach of man, fire, or even under other circumstances, she would fly in wild terror. We knew this strikingly exemplified in a case where injunctions were given to some workers to look before

them, and to use their scythes carefully, in a field of ray-grass where a partridge was known to be sitting. They were careful men, and took every pains to find out where the partridge was, and to frighten her up from before them, but all in vain—she sat immovably on her nest, and her presence was only detected by a slight flutter consequent upon the scythe having severed her head. This was passive courage, but the same roused to activity must have been observed by most persons who have resided in the country, when the hen partridge has thrown herself at their feet, and boldly flattered at a few yards before the intruder, to lure him from her young ones. A still greater instance of courage to protect these is recorded by the Rev. Mr. Jenyns. The cries of a partridge in distress for her brood being heard, attention was drawn to a grass field, in which was wagging a most furious contest between two of these birds and a carrion crow. Probably the latter had attempted to carry off some of their newly-hatched young, but the two parents resisted the attempt with so much determined vigour as to frustrate the attempt, and to compel the ill-omened bird to act upon the defensive. The contest was long, but at length he began to retreat, yet the partridge continued the assault until the crow was so fatigued, and became so disabled by their blows, as to be unable to use his wings. In this state he was eventually taken by the person witnessing the battle, who had quietly advanced to the place of action unheeded by the combatants, whose shooting was engaged with the momentous struggle was going between them. One more anecdote, and our allotted space will be occupied. The sagacity of the pointer is well known, and he knows as well as his master does whether a bird has been wounded by the latter; as a striking instance of this we may relate the fact that a gentleman shooting near the sea-shore at Maldon, in Essex, fired at a partridge, and was sure that he had hit the bird. His favourite pointer was evidently of the same opinion, and watched the bird in his after-fight for some seconds, until it towered and fell upon a little island, or siltan, far from the shore. Sancho's repugnance to the water was immediately overcome; he leaped down to the water, swam to the island, found the bird, and returned with it in his mouth to his master.

INSECTS.—Unfortunately very few persons possessing an orchard are unacquainted with the American Blight, *Eriosoma lanigerum* of some entomologists, and *E. mali* and *aphis lanigerum* of others. Its generic characters are, having an abdomen (belly) without tubercles or horns, antennæ short and thread form, and the whole body more or less cottony or tomentose. This pest has been known here only since the year 1757. Sir Joseph Banks traced its origin to a nursery in Sloane-street, and was led to conclude that it had been imported with apple-trees from France; however, he found it to be wholly unknown there. If not a native insect, it is most probably derived from North America, from whence apple-trees had also been imported by the proprietor of that nursery. Whatever its origin, it spread rapidly. At first it was confined to the vicinity of the metropolis, but it has now found its way into other parts of the kingdom, particularly into the elder counties; and in 1810 so many trees perished from it in Gloucestershire, that, if some mode of destroying it were not discovered, it was feared the making of cider must be abandoned. The presence of these insects is shown by the white cottony matter in the cracks and excrescences of apple-tree branches in the spring. When crushed they exude a reddish fluid. These insects are injurious by piercing the sap vessels of the tree, sucking the juice, and causing wounds which ulcerate and finally destroy the branch attacked by corroding through all the sap-vessels. The cottony matter is abundant, and, waited to other trees, conveys to them infection by bearing with it the eggs or embryo insects. Such, however, is not the exclusive mode of diffusing the disease, for although the females are usually wingless, yet some are probably produced with wings at the season propitious to colonization; the males are uniformly winged. In the winter these insects retire under ground, and prey upon the roots of the apple-tree. A tree thus ravaged at all seasons will soon be killed if prompt and vigorous remedies are not adopted. The affected roots may be bared and left exposed for a few days to the cold, and the earth before being returned be saturated with ammoniacal liquor from the gas-works. In early March the branches should be scraped and scrubbed with the same ammoniacal liquid, or a strong brine of common salt; but, whatever liquid is employed, the scraping and hard bristles of the brush should penetrate every crack in the bark. We have found spirit of turpentine, applied thoroughly to every patch of the insect by means of an old

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
30 Highest & lowest temp.	Fine.	Cloudy.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.
31	80°-67°	70°-46°	77°-61°	72°-42°	73°-17°	76°-48°	69°-53°	72°-45°
1	Cloudy.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Stormy.
2	74°-45°	64°-56°	82°-56°	80°-44°	75°-54°	79°-56°	67°-43°	69°-48°
3	Fine.	Rain.	Cloudy.	Fine.	Fine.	Cloudy.	Cloudy.	Fine.
4	72°-36°	66°-58°	68°-57°	84°-44°	66°-50°	67°-46°	66°-45°	66°-42°
5	Fine.	Cloudy.	Cloudy.	Fine.	Cloudy.	Fine.	Fine.	Fine.
6	73°-48°	81°-56°	82°-54°	79°-50°	64°-47°	71°-41°	65°-39°	70°-45°
7	Showery.	Fine.	Fine.	Fine.	Fine.	Cloudy.	Rain.	Fine.
8	74°-50°	74°-53°	82°-57°	74°-61°	63°-41°	75°-42°	66°-41°	75°-46°
9	Rain.	Fine.	Fine.	Fine.	Cloudy.	Fine.	Fine.	Fine.
10	75°-41°	74°-49°	75°-42°	75°-42°	64°-40°	68°-34°	68°-34°	68°-47°
11	Rain.	Fine.	Fine.	Showery.	Cloudy.	Fine.	Showery.	Fine.
12	56°-36°	74°-47°	74°-45°	73°-41°	60°-50°	73°-58°	66°-39°	83°-57°

tooth-brush, the most effective destroyer of these insects. The spirit must be applied carefully, because it kills every leaf on which it falls. The codlin and June eating-apple-trees are particularly liable to be infected, but we never observed it upon any one of the russet apples, and the Crofton pippin is also said to be exempted. Our woodcut represents the insect of its natural size as well as magnified. The head, antennæ, and proboscis, by which it wounds the sap vessels, are still further magnified.



As a proof of the earnestness of their desire to promote cottage gardening, and of their gratitude for the patronage they have received, the proprietors offer to place gratuitously at the disposal of the managers of each Horticultural Society in England, Wales, Scotland, and Ireland, a copy of the first volume of *THE COTTAGE GARDENER*. They wish it to be offered as a prize to such cottage gardener as may be thought most deserving by each Society's managers.

The proprietors request that application for copies may be made *before the 1st of October next*, it being desirable that they should know the number of volumes they must have bound, as they propose having the binding executed in a distinct style. Communications upon the subject are requested from the president or secretary of all such societies.

Which is the most beneficial mode of applying manure? is a question requiring attention to many more points of extraordinary importance than ever entered into the mind of a Romford potato and cabbage grower, having no other notions beyond "plenty of good stuff so rotten as to be easily dug in."

In the first place, in what state must manure be to be "most beneficial?" Practice coincides with science in answering—in a liquid state. The spongioles, or mouths, of the roots are too small to take in the finest powder human art can form, and it is only when in the far more minute state of division, caused by dissolving a body in water, that any substance can pass through the roots of a plant to its digestive organs. Nor does this branch of the inquiry stop here, for though it is certain that manure in solution is the best form of application, then the question arises how strong ought the solution to be? Experiments on a large scale, added to the general experience of gardeners, demonstrate that it ought to be very weak. Little and often is found to be a healthful rule in feeding plants as well as animals. If much, or very strong, liquid manure is given to our crops from which we desire any return but in leaves, our hopes will be frustrated, for either disease or unfruitful over-luxuriance will be the certain consequence. Even to those crops from which we seek a profitable return in leaves—such as spinach, rhubarb, and cabbage—if the liquid manure be very strong, that is, if it contains much of the saline or other soluble components of the manure, it very generally destroys the fibrous roots and causes death. Take guano for an example, and here, if it be genuine, only half an ounce to a gallon of water is found to be the most beneficial proportion. Even of the dungs containing much less of the salts of ammonia—that of the sheep, for instance—yet no more than a peck of it to thirty gallons of water is found to be most advantageously employed. Even in this diluted form it cannot be given beneficially to plants more than

twice a week, or three times if the weather be rainy; this latter fact pointing out still more strongly the necessity of using the liquid at a very reduced strength.

Upon these points it is scarcely necessary to offer any evidence, for it is attested by the universal experience of gardeners; yet we will quote the following from the most able essay on the subject that has ever been published: *

"Mr. Barber, of Muirdrockwood, had 27 acres of land before his house, and the land was so poor that it originally only fed two cows, and that poorly; he kept 40 cows and 4 horses in his stable close to his house. He put the dung of the 40 cows into a tank, and passed a rill of water through the tank, and irrigated with the solution 22 acres. With the miscellaneous refuse of his house and the scullery, he irrigated five acres. The produce now, from the same 27 acres of land, fertilised by the liquid manure, enables him to feed 40 cows and the four horses. It was a very important experiment as to the result of the comparison between the effects of the liquid and the solid manure on the same land. There were some knolls of land close by, which were elevated, and he could not irrigate; he had not the use of the hose; and whilst he has got four or five-fold crops by the application of the liquid manure, with all the top-dressings he has been able to use he has never succeeded in getting more than one and a half-fold of produce from the same sort of manure, the dung.

"I have had a number of other experiments made, all to the same effect; and one thing I find, that, by the horticulturists, those who grow large produce and obtain prizes, invariably, so far as I have heard, do it by the application of the manure in the liquid form. I have obtained this further very important conclusion from such facts as I have collected, that an extent of dilution such as extinguishes smell is about the best for absorption or assimilation by the plant; that all the progress is made by diluting more and more, and applying more and more frequently. A very able horticulturist, Mr. Pince, of Exeter, tells me that he has arrived at this point, that he applies the liquid manure twice a week, and with one of plain water, as he expresses it, in the interval between each watering with the liquid manure. He gets rid of fibrous matter, and, to use his own expression, 'I give this water with the manure in it so clear, that if you were not to know what it was, you would not object to drink it.' The two conclusions are in favour of frequent applications of manure in solution, and of getting rid, as much as possible, of fibrous matter.

"Liquid manure has been applied by surface watering in the kitchen garden at Worsley, and, as I am informed, at a number of other places, with as marked an effect as upon grass-land. Mangold-wurzel, cabbages, and turnips have thriven remarkably upon it. A merchant of Philadelphia (U. S.) who was fond of horticulture, beat all competitors at a show there by the enormous size of his cabbages and other produce. His gardener was seen to draw a liquid from a large hogshead, and dispense it, from time to time, to the plants with the watering-pot. There was an intense curiosity to divine what might be the elixir which produced so wondrous an effect. The merchant in-

* SEWER MANURE.—Statement of the course of investigation, and results of experiments as to the means of removing the refuse of towns in water, with suggestions of the practicability of applying sewer water as manures by subterranean channels. Prepared for the consideration of the Committee of Works, by Edwin Chadwick, Esq., C.B., with appendices, &c. We recommend its perusal to all our readers; it is full of information and just views.

formed me that he at length yielded to the importunity. He had the top of the hogthead taken off, and displayed the contents, the remains only of common stable-dung. He had had stable-dung put into the hogthead, filled it with water, and ordered his gardener to water the plants twice a week with the solution, renewing the water in the hogthead until no smell remained there from the dung. He had done no more than this surface-watering regularly twice a week."

The next important consideration is—where ought liquid manure to be applied? a question somewhat novel, and involving consequences that will require more space to discuss than we can spare to-day. We must defer it, therefore, until next week.

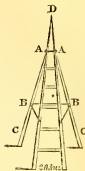
THE FRUIT-GARDEN.

GATHERING AND STORING FRUIT.—As matter appropriate to the season we will endeavour to offer a little sound advice on this head, a subject which concerns equally the humblest cottager and the most wealthy proprietor.

The most important feature to consider at the outset of the question is the fact that all unripe fruit, such as apples and pears—fruit, we mean, in which the ripening process is not quite complete—ferment exceedingly when first housed; and that this fermentation, after spending itself for a fortnight or so, gradually subsides, and by the time the fruit has been a couple of months or so in the store-room becomes imperceptible, although it never entirely ceases as long as any moisture remains. The first requisite in fruit gathering is, of course, care in the handling. No one can suppose that an apple torn from the tree at random, leaving its footstalk behind, will possess equal keeping capabilities with one slipped off with that peculiar twist well known to practical men, and which saves the fruit from abuse. In almost all cases the fruit requires lifting slightly afterwards, and good gatherers generally take hold of the bough or branchlet with the left hand to steady it, whilst with the right they gently raise the fruit upwards; this, if the fruit is as far advanced towards ripening as it ought to be, will generally cause the fruit to detach itself. We do not mean to say that those who have extensive orchards, and who have, perhaps, many hundred bushels of apples to collect, can pursue such a nice operation through the whole of their trees; these have not the same object in view as the amateur or cottager, and make use of expedients which would be quite incompatible with the objects of small gardeners. We, therefore, merely point to the course necessary to be pursued by those who look forward to a nice succession of fruit through a tedious winter and protracted spring, whether for home consumption or for sale.

Many instruments have been invented whereby to facilitate the gathering of fruit, and some of them will be found very useful helpmates to the amateur especially, who is in many cases not so well drilled in such rule-of-thumb matters as the ordinary gardener. Amongst them we would particularize a most convenient ladder, which is equally adapted for pruning standard trees, or for gathering their produce; the accompanying sketch will convey some idea of it. It is 12 feet in length, and may be thus described:—At A A are iron loops, by means of

which the legs, C C, work in every direction, and by which they can be stretched to a proper distance: these legs fold up to the ladder when about to be removed, or when not required during use. The sharp point, D, enables it to be pushed up among the branches, and is useful for the operator to take hold of. B B are cords to act as an additional safeguard against the legs moving; they are, however, scarcely necessary.



In addition to the above, what is termed the *Orchardist's crook* is used by some. The use of this implement is to seize the branch with one hand and draw it to the operator, and then, by putting the sliding piece over another branch, such branch is held in that position by the obliqueness of the line of pressure, which prevents the sliding piece from moving, thus leaving the operator free to use both hands in gathering the fruit. The following is a sketch of the implement.



Some other modes exist for facilitating the gathering of fruit, but they, for the most part, have fallen into disuse, it being pretty well known that, after all, the chief point is careful handling. An earnest, active gatherer, with a long ladder, a pair of steps, and a hooked stick, will seldom call for more implements: a little off-hand sharpness, with much activity and care, will generally accomplish all that is needed.

BASKETS.—We must now come to the really practical part of the business—the getting the fruit off the trees, and storing it securely. The mode of gathering must depend in some degree on the character of the tree; thus, for instance, a dwarf-trained espalier needs but a common hand-basket—steps or ladder are scarcely needed. One thing, however, is necessary, provided more than one layer is put in the same basket, and that is cap paper: we place a sheet between each two layers in the case of choice dessert fruit. In ordinary cases we use hay, or, it may be, rhubarb leaves, but we dare not recommend them; they are generally expedients forced on us by the hurry of the moment. To be sure, where there is a very small amount of fruit, and it is unpacked immediately, such will suffice; but if, unfortunately, baskets should stand a day or two through pressure of business, the hay will impart a musty flavour, and the leaves in decaying corrode the skin of the fruit.

In gathering from trees eight or ten feet in height a pair of steps becomes necessary; ordinary steps, such as are used by workmen in-doors, will suffice, or those figured in our present Number may be put in requisition by those who wish to have everything very complete. It is necessary in this case, where only one person gathers, to have a basket with a pot-hook, the straight end of which being fastened to the cross handle of the basket by a cord, the hook end may be hung at pleasure on any part of the tree. Thus equipped, an amateur may move his own steps in any direction; ascend, gather a portion in his pot-hook-basket, descend and place them in a larger basket—using a layer of cap-paper between the

strata—ascend again, and so on until the gathering is complete. With regard to huge orchard trees the case differs slightly; here business is transacted on a much larger scale; even the rude wheelbarrow is oftentimes in requisition, or even a tumbril or light cart—but these are cases not often occurring with our readers; suffice it to say that much of the business is here transacted by means of very long ladders, and long hooked sticks occasionally, and sometimes a long balloo of “Bill, mind that ladder don’t slip!” when Bill, to shew the amount of his philosophy, will exclaim in return, “Ne’er mind the ladder, lad—get that basket emptied, and let me have it! I can’t get on for want of baskets!”

Well, now we have gathered a lot of apples or pears, as the case may be, and what are we to do with them? This brings us to the storing part of the question. Before, however, proceeding in that part of the business, we feel bound to advert to the symptoms of ripeness.

SYMPTOMS OF RIPENESS.—This is a broad term to deal with, and no standard that can be set up will apply equally to all fruits.

We will commence with the *apple*; here we must at once throw them into two classes, viz., table fruit and kitchen fruit. In the former it is absolutely necessary that they remain on the tree until they have acquired that depth of flavour for which alone they are esteemed, and which constitutes them a separate class. Kitchen apples for long keeping, on the contrary, we would gather a little short of that degree of ripeness. There are two acknowledged criteria of ripeness universally admitted in the apple; the first, that coloured pips or seeds are an indication; the second, that on lifting the apple slightly up it parts tolerably easily from the tree without pulling hard at it. The last is mostly taken as the test, and we scarcely know of any better criterion. Much allowance, however, must be made for the kind of fruit; such as are inclined to be dry or mealy should be gathered somewhat earlier; those of a subacid character, and abounding in juice, should be allowed to become tolerably mature on the tree.

Pears.—More skill is necessary in pear than in apple gathering; these are so various in character, that the utmost care is necessary. We would, in most cases, advise the cutting a fruit in two, and judging by the pips; these should be about three parts coloured in the majority of cases. Any kinds, as the Easter beurré, which are apt to become insipid, should, by all means, be gathered much earlier. Most of the Flemish kinds, especially such as the Beurré rance, the Beurré d’Arenberg, the Glout morceau, the Passe colmar, the Winter neillis, the Ne plus meuris, &c., should hang until late, unless on a south wall. We have known the Althorpe crassanne to excel all the pears in the garden, but in the majority of seasons it becomes mealy prematurely; this kind is so evidently bred from the old Swan’s-egg, that it is folly to place it against a wall, unless a very cool one; such as this and the Easter beurré, moreover, do not require that amount of sunlight which such as Winter neillis and Passe colmar flourish in; and for that reason we advise the summer spray to be left a greater length in order to shade the fruit.

Stone fruit.—Few directions need be given as to these; almost every possessor of a garden, however limited, knows when to gather a peach, a plum, or a cherry. We may observe, however, that double care is necessary in handling these tender things; as for peaches, it is almost impossible to place two layers in a basket without serious mischief. We gather in

flat-bottomed baskets, placing a layer of soft “rowen” hay (second or third cut) in the bottom of the basket—a single layer, as before observed—and these are carried at once to the fruit-room, where they are carefully placed on cap paper. It requires nice judgment to ascertain when a peach is fit to gather; many persons let them fall on a prepared bed of litter or hay. This, indeed, is the old plan, and certainly not to be altogether condemned; we, however, prefer gathering them, relying on long experience, and depending much on the feel, as to whether they seem inclined to leave the tree when handled rightly. Colour is by no means a criterion; very pale peaches are sometimes more ripe than those which are high coloured.

MODES OF STORING.—These are various. In former days it was deemed essential to ferment apples, by placing them in conical heaps covered up. We opine that few will follow this practice now. We are, indeed, at a loss to conjecture what could have led to the practice; for, as to keeping fruit, they perspire, in the main, too fast; it is this very perspiration which wars against the keeping properties. To be sure, a certain amount is, doubtless, necessary; probably they could not undergo the chemical change necessary in order to give them a full amount of flavour without a continuous action of the kind. Be that as it may, our main business with keeping fruit is to arrest this principle in degree, and to this end the fruit-rooms of modern times are not required to be so excessively dry as formerly; added to which, darkness is well known in these days to promote the keeping of many kinds of fruit. It appears that light acts in conjunction with an advance of temperature in hastening the decay of fruit; and that even *light alone*, under all circumstances, has a tendency to promote perspiration or evaporation in vegetable tissue.

A uniform temperature is essential, and that a low one: we should say a steady temperature of from 40° to 50° is excellent as a general principle. Many of our Flemish pears, however, will not attain perfection under this degree of cold, for such we must term it. For these pears a special provision must be made late in the autumn, of which we shall soon have more to say; in the meantime we take leave of fruit gathering by observing that the thinner apple or other stores are placed the better. When people throw them in heaps in these days, it may be considered a matter of necessity; much, therefore, depends on the convenience the parties possess. We shall return to this subject in due time for further operations.

R. ERRINGTON.

THE FLOWER-GARDEN.

ROUTINE WORK.—At this season of the year the great object is to keep the flower garden well supplied with plants either in bloom or approaching to it. Whenever there are vacancies, let them be filled up with such things as will flower this autumn. For this purpose it is good to have a reserve garden in some convenient place behind the main flower garden. The plants to fill up with should be kept in pots, and grown in them till they are nearly in flower, and then turned out of the pots, and planted in the beds or mixed flower borders in front of shrubberies, or any vacant place. By following this method the garden may be kept gay till frost comes and cuts them all down together.

SCARLET GERANIUMS.—Should the plants in the

beds during wet weather become very luxuriant in foliage, and produce but few flowers, you will find them much benefitted by lifting them up with a spade, carefully pruning in the coarse strong roots, and immediately replanting them: this will check their too free growth, and cause them to flower more abundantly.

PERLARGONIUM UNIQUE.—This is a very desirable variety, now pretty generally known and appreciated as a bedding-out plant; the foliage is of a light glaucous green, of a beautiful shape, something like a deeply-cut large oak leaf, finely serrated at the edges; the flowers are in compact close heads, rising several inches above the foliage, and of a bright purple colour, thus being very conspicuous at a considerable distance: it answers admirably also as a plant to cover a low wall or palisade; we have seen it used for this purpose, and can confidently recommend it; no flower garden, however small, ought to be without it. Our cottage friends should inquire for this charming plant, and procure either a plant or a cutting: it strikes quite as freely as the common scarlet. Cuttings may be struck readily by being put in some shady corner, or under a gooseberry bush, and taken up and potted as soon as rooted. The plants so treated may be kept either on a greenhouse shelf or put in a cool frame, and protected from frost. Geraniums may be allowed to remain in the beds a considerable time longer if a few hoops are stretched over them, and covered with mats at night on the least appearance of frost. The shelters for protecting the blooms of rhododendrons described and figured in our present volume, p. 6, would answer well for this purpose. If you can protect them from the early frosts, which sometimes occur towards the end of September, and do not happen again till November or December, they will continue to flower, and be very ornamental, up to the latter period, thus rewarding you by their beauty long-continued, for the little extra trouble.

GRASS LAWNS.—During the later months of the year, the lawns, if well kept, are exceedingly beautiful. Mow, sweep, and roll them at least once a fortnight. *Fresh turf* may now be laid with advantage, as it will sooner take root, and form a compact even surface at this season of the year, than at any other. Make the ground solid in every part alike, or it will settle unevenly, and give you considerable trouble to level it afterwards: in treading it, wherever you find a place softer than the rest, ram that place down very hard with a beetle or pavier's rammer, filling up with soil, and beating it down also very firmly, until the place is even with the rest.

FLOWER BORDERS.—Let all your autumn blooming flowers be particularly well staked and tied, as the time for the equinoctial gales is fast approaching, and will, if your flowers are not well tied, break them down and destroy the flowers.

WALKS require constant attention to keep them in good order. The small annual grass (*Poa annua*) seeds almost as soon as the seedlings are up, and in wet weather grows rapidly. If your walks are much infested with this troublesome weed, choose a dry hot sunny morning, and with a Dutch hoe cut them up by the roots, taking care not to miss the least bit or blade of weed; rake it over immediately, collecting all the weeds the rake will draw off, and remove them, and let them lay loose exposed to the sun. Should the weather continue dry, repeat this raking operation until you are satisfied all the small seedlings are killed; then roll the walks frequently until the gravel is firmly set again.

FALLING LEAVES.—Evergreens will now be shedding their older leaves: these ought to be collected as often as possible, and taken to the compost yard, to make, when rotted, vegetable mould, a kind of soil almost indispensable for potting purposes.

HEDGES.—To keep these in good order, they ought to be clipped now, and will then remain neat and tidy till spring; keep them quite clear of weeds, for if these are allowed to grow they will choke the lower branches of the hedge plants, and soon make the lower part of the hedge naked, unseemly, and give ingress to poultry and game.

CLIPPINGS OF HEDGES.—Collect these, and if you have a vacant space in your vegetable ground trench it, and bury them at the bottom of each trench; they will ferment, and greatly enrich the soil; or, if that is not convenient, lay them in a heap, and cover them with soil; they will make excellent manure to dig in at the time when your ground is ready for that operation.

HARDY CLIMBERS.—Nothing gives a garden a more untidy appearance than neglected hardy creepers. Let those on walls be kept constantly nailed; thin out superfluous shoots, leaving those of moderate growth just of sufficient number to hide the wall, and no more. By this thinning, the wood is ripened, and is more likely to produce flowers the next season. Tie the creepers on trellises every week, or, at least, as often as they require it. Prune away all straggling or rampant-growing shoots. Such as have yet to flower may be left unpruned till the bloom is over, but keep them firmly tied to the trellis. *Climbing roses* require constant attention to keep them trim and neat, especially on walls and trellises; cut away all decayed flowers, pruning their stalks down to the first strong bud. The beauty of *pillar roses* is greatly increased by a judicious care in tying and pruning. After the rose-trees have reached the top of each pillar the shoots may be allowed to hang down in a graceful, easy way, thus giving that elegant attitude they assume if left to grow as they will: cut off, however, all the flower stems after they have bloomed, and also any over strong shoots that are likely to rob the rest of their due support; these shoots generally come from the stem nearly close to the ground; they ought to be cut off in an early stage to prevent their sucking the life-blood from the blooming shoots. Sometimes a tree will be sickly in its older branches, and send up from the root, or very near it, one of those strong shoots: in such a case we advise, as soon as this shoot has attained some length, and is furnished with foliage, to cut down the old stunted feeble shoots, and train the young vigorous one in their place, giving at the same time a good soaking of liquid manure water.

BIENNIALS.—If you have attended to our former directions your plants will now be bushy and fit for planting out in the places where they are to flower next year. Should they, in consequence of the late moist weather, be growing so strongly as to become crowded in the nursery beds, and the situations you wish to grow them in are yet occupied with other plants, it will be advisable to transplant them again, so as to give a check to their too luxuriant growth. Unless they actually touch each other, it will not be necessary to plant them wider apart, for the mere lifting them will give them a sufficient check. Attend to these suggestions, or your plants, should the winter be severe, which we think very likely, will be all, or nearly all, destroyed. In gardens where this kind of flowers are grown in the mixed flower borders, or in vacant places in the front of the shrub-

bery, they may be planted now with great advantage. Should any be yet in the seed bed, lose no time, but transplant them immediately, giving six inches square to grow in: they will make nice bushy plants yet.

ANNUALS.—There are several kinds of annuals which may be sown towards the end of the month: by sowing them now they will flower much earlier next year; they must be of the hardiest kinds, and should be sown thinly in an open situation. Some, no doubt, will perish should the winter be severe, but the greater part will survive, and will flower finely very early. The experiment, or rather method, (for it has been often adopted,) is worthy of being tried. The following are suitable for this purpose: Lobel's Catchfly, new Siberian Catchfly, white and purple Candy-tuft, the annual yellow, white, and golden Chrysanthemum, *Clarkia elegans* and its varieties, *Collinsia bicolor*, *Coreopsis picta*, *Erysimum Peroffskianum*, *Eschscholtzia*, *Gilia tricolor*, yellow Hawkweed, double purple Jacobea, *Kaulfussia ameloides*, branching Larkspur, double dwarf Larkspur, Venus's Looking-glass, *Nemophila insignis*, double Poppy in varieties, *Sphenogyne speciosa*, and *Viscaria oculata*. This is a rather long list, but you may select according to the size of your garden.

FLORISTS' FLOWERS.

CARNATIONS AND PICOTEES.—The bloom will now be over. Expose your plants to the full air and sun on all fine days, but protect them from very heavy rains. Such layers as have rooted had better be taken off the old stools, and potted in pairs into pots five inches across; let them be well drained, as that is a very important point of culture to keep them a good colour and healthy through the winter. Some kinds are much longer in rooting than others; these must of course be left on till roots are formed. We would observe, however, that if you can see the least root to any layer you may safely take it off, as it is sure to grow on at once if the layer is healthy. Such as you wish to seed must be protected from wet entirely, as if the pods are exposed even to heavy dews they are sure to rot and spoil the seed.

PINKS.—All the pipings of these elegant flowers should now be planted finally in the bed where they are to bloom. By early planting they become strong, and get firm hold of the soil during the autumn months, and are consequently able to endure the hardships of the colder months. To save seed use the same precautions as recommended for the carnation. It ought to be now nearly ripe; as soon as you judge it is so, gather it immediately, and dry it in the morning sun.

DAHLIAS keep particularly well tied to their stakes, and shelter your exhibiting blooms from too much sun and all ruin. T. APPELEY.

GREENHOUSE AND WINDOW GARDENING.

TRANSMITTING SEEDS, ROOTS, &c., TO THE COLONIES.

—Last spring we had several inquiries as to the best mode of packing seeds, &c., from emigrants about departing to Australia, and, in addition to the short answers we gave in the columns for answers "To Correspondents," we promised to take up the whole subject and devote a chapter to it before the end of the season. I am now reminded of this promise, and the subject has been referred to my department for explanation. I shall, therefore, in the first place,

relate a case of this description in which I was myself engaged, and after that add some hints from what experience and a course of reading about such matters may suggest. In the autumn of 1838 a friend of mine was preparing to emigrate to the colony at Adelaide, in South Australia. He was one of our best English gardeners, and held a responsible situation in a large London nursery for twenty years previously. During that period he had ample opportunities of seeing cases of plants and seeds from all parts of the world unpacked at the said establishment, and had the chief management of nursing and rearing such things on their first arrival. Therefore he might be accounted one of our best judges of how such things ought to be prepared in England for long voyages. Nevertheless, when the time for actual preparations had arrived, he was as anxious as any other emigrant could be to obtain what aid he could from among his friends of the "craft," both as to advice and supplies of different kinds of seeds. He had then some idea of rearing plants and seeds for sale in the new colony, and, of course, was anxious to procure as many kinds as he could obtain. His object, he said, was "not quantity, but quality and variety;" or, in other words, "I do not want to take a large quantity of any given kind, but as many kinds as I can procure, and each to be the best sort of its kind," and this should always be the first consideration in such cases. Altogether he managed to procure hard upon 300 kinds of seeds, more than the half of them from the firm which he served so long, and the rest from different individuals. With these he went most judiciously to work. In the first place, he sorted the seed packets, putting all of one kind together. Thus, let us say that he received six packets of early frame peas, nine of mignonette, three of a third sort, and so on from so many individuals. All the packets of one kind he mixed together, and then took as much of that kind as he thought needful, and so on with all the rest. He had thus many chances to one against bad or very old kinds. He then placed his seeds under a veranda full in the sun and air for a fortnight to dry them thoroughly, taking them indoors every night to escape the dews and damp air: meantime he procured sheets of the very coarsest brown paper, which he dried in an oven till they were as dry as tinder; then cut them into squares of different sizes, making of these the usual seed packets, and each was as large as to contain about double the quantity of seeds that were put into them. In other words, his seed packets were only half full, and when they were all put together one would be surprised to see what little room they occupied. Up to this point would be a sure way of proceeding on the part of any one wishing to send out seeds to a friend abroad, and the next step in such a case would be to provide a bag of the very coarsest canvass, and to tumble all the seed packets into it, and half an ounce of powdered camphor to the bargain, to make it disagreeable to any of the insect tribe; then to get leave from the captain of the vessel they were to be sent by to have the seed bag hung up in a corner of his own cabin, there to remain untouched till the end of the voyage. But my poor friend could not expect such indulgence from the master of an emigrant vessel, where all, or almost all, would consider themselves entitled to the same privilege; so we went to work another way. We made choice of a stout kitchen deal table, turned it upside down, the top of it thus making the bottom of an excellent strong box or case. The sides and ends were enclosed with stout deal boards, $\frac{3}{4}$ -inch thick, and planed on both sides.

These he intended to make into shelves for the "guide wife's" crockeryware in their first cottage at Adelaide. It would take the ready pen of a George Robins to describe the sundry articles which were stowed into this omnibus, suffice it here to say that a span-new tea-kettle was half filled with tulip roots, and the other half with anemones and ranunculuses; one saucepan was filled with six dahlia roots, and a second with I forget what, but every thing that had a hollow part was as carefully filled as a dentist would a hollow tooth. The bed-clothes were put in about the middle of this medley, and our seed packets laid singly in layers between the folds of the blankets. The top of a second table was then taken off its frame, and made into a lid for our friend's omnibus. This lid and the sides were fastened to the legs of the original table with screws, so that when the whole were undone in Australia every part of this box could be applied to its original use, and not the worse for the journey either, as the screw holes could easily be filled in with wooden pegs. Altogether, this turned out the best experiment I ever either heard of or read about, under such circumstances.

We did not hear from him till two years after he left, and he could not then recollect of any thing of consequence that he lost altogether. He also said in a later communication that the most troublesome weeds in his garden would fetch a high price in a London nursery, being chiefly ground orchids of most strange aspects. He took out several good testimonials from the firm he left, from the clergyman of his parish, and from other influential gentlemen, which is a most essential point for all emigrants to consider. These testimonials, with his own industrious habits, and being a fair scholar for his sphere of life, soon procured for him a good appointment, and I hope he is happy and doing well.

Much about the same time a British gardener, who was settled in a nursery business in one of the United States of North America, came over to London with a cargo of West Indian cacti on speculation. On his return early in the autumn, he took with him, not only seeds and roots, but actually a large collection of cuttings, some of which I supplied. Not cuttings of fruit trees, for he did not seem to care any thing about them, but of soft-wooded flowering plants, such as pelargoniums and scarlet geraniums, thick stems of salvias, and the like. Yet he expected to be five weeks on the water. These cuttings he packed in small lots in a kind of dry Indian moss, called *Tillandsia usneoides*, and placed them on the top of one of his boxes, where he could have easy access to them, but how either he or they got across the water I never heard, but I recollect his staring at me when I first expressed doubts about the safety of his cuttings.

From all this we see that there is no danger about taking seeds of any sort to any part of N. America, and, if the proper steps are taken, nearly as little risk in conveying them to the antipodes, for I have repeatedly packed seeds for the Cape of Good Hope and St. Helena, without losing one out of a hundred, and once our European seeds reach the latitude of the Cape they are almost sure to do well enough for the rest of the voyage to New Zealand or Australia, because after that they have a comparatively cool temperature all the way; whereas, if they are destined to India or China by such conveyance, the awful ordeal of crossing the line a second time is what destroys so many seeds, and not the length of the voyage. Therefore, powerful non-conductors should surround them, but no attempt should ever be made

to exclude the air from them. While the now obsolete mode of sending over seeds in bottles, sealed Indian or China jars, and other contrivances to exclude the air from them were resorted to, we could hardly get a tithe of them to do any good, except a few sorts that will carry anyhow. Of all modes of packing we would first recommend to emigrants that of placing them in thin layers among woollen cloths of any description, that being the best non-conductor of heat within their reach, not excluding the air altogether, and if any of the seeds rot their juices are absorbed, and the mischief goes no farther if the separate packets are kept well apart amongst the folds of blankets, flannel, or any woollen wearing apparel. Heavy seeds, as beans and peas, would be safer in stout canvass bags, and this kind of canvass is as good as the coarsest brown paper for preserving them. Anemones, tulips, and all sorts of bulbs or tubers, should be packed in small quantities together, and, if possible, in cotton wadding or cotton wool. Then, if one rots or is diseased, this cotton will prevent the communication of such disease by sucking up any moisture which may prevail, and will let off gases or bad smells, which would otherwise risk a whole cargo. As to the length of time seeds will retain their freshness and power of vegetating, no one knows that perfectly, but we all do know that most seeds will live long enough to be carried from one part of the world to any other part, and that is sufficient for the purpose of the emigrant. To be sure, he may have to wait for months after his arrival before an opportunity of sowing them occurs, yet, if the seeds arrive safe, and are kept from damp, there is little danger about their perishing for the first year or two, while many seeds are not much the worse for being kept ten years.

If an emigrant, on landing at any of our South Sea colonies, can show that he is in possession of the newest seeds direct from London, he will stand a better chance of finding friends and employment than any one else. Even the bare fact that he cares about flowers and plants is a sure feather in his cap, for idlers, with rogues and vagabonds, never, or seldom, think about such things; therefore, I would strongly advise that those who remove to distant shores, either for pleasure or as emigrants, take out some English seeds with them. We can form no conception here of the sensation an "English soil" in the "offing" will create along the whole side of a new settlement. No matter what kind of seeds you may bring out, it is sure to be prized more than native seeds of the same sort; and let us be thankful that such is the case, and that no distance, however great, can efface the reminiscences of "auld lang syne."

Being one of the "working classes" myself, in every sense of the word, and having some friends or old fellow labourers in every one of our colonies, and, moreover, the subject having thus incidentally been thrown on my hands, I do not think that I am much out of place if I say a few words on the subject, as very likely some of our cottage readers—and they are many—may like to hear my views of emigration generally; but I must not recommend one colony in preference to another. If we take a gardening view of the subject, however, and compare animals with plants, we shall find—other circumstances being the same—that animals, like plants, are more influenced by climate than by any other natural circumstances which may surround them; that the young of either kingdom are reared more easily under a temperature a few degrees higher than

is natural to the adult species, and that the old age of animals at least is more enjoyable, and, as far as natural causes have an influence, more prolonged under a milder climate than is requisite for the full development of middle-aged life. All medical and horticultural authority are agreed on these points, and any disregard to them on the part of an intended emigrant, like the violation of any other natural law, is sure to result in disappointment sooner or later. Hence it is that the Russian boor can bear up against the rigours of a Siberian winter; that the Gael from the sides of Morven are more at home on the banks of the St. Lawrence than any other "Britisher," and that the Hindoo cooly or Ashantee would outlive both, and still be in health and vigour, in the pestilential atmosphere of a West Indian plantation. Therefore, if I were to emigrate to-morrow, I would make choice of a country with a mild climate, and bundle off to some of the Australian settlements, or to New Zealand, make myself as agreeable and as accommodating on the voyage as I possibly could, always find something to do, and do it cheerfully, if only to keep a good tool from rusting, and before I went on board I would pledge myself in secret that I would find no fault with any thing or any body as long as I was on the water. As soon as I landed I would look out for employment in my own calling at once, and put off sight-seeing till that was secured; never spend a sixpence unnecessarily, and, even if I had money enough to "put up" for myself, I would prefer to remain at work for others until I could see with my own eyes how to lay out my money, and where, for it is very difficult to see things through other people's eyes. All this time I would make it a point to gain the esteem of those who employed me by attending diligently to what they set me to do, and by a steady course of conduct. Finally, whatever difficulties I met with, I would endeavour to look only on the fair side of the question. As to removing from the scenes of our childhood, who is he that must live by the sweat of his brow but must do that, and when once you are from home what does it signify if the distance be 50 or 5000 miles?

D. BEATON.

HOthouse DEPARTMENT.

An idea is prevalent with many people that nothing is good and beautiful unless it be high-priced and difficult of acquisition. Nowhere is this principle more developed than in objects connected with gardening. Novelty and variety are with many the only things worth caring for. A plant, lovely and beautiful, loses its charms with all such pretended arbiters of taste whenever it is seen enlivening the window of the mechanic's or the cottager's abode. Only obtain, at certain seasons, the pine apple from the West Indies at a very cheap price, and, whether they are good or the reverse, such great-minded people would not at such seasons bring out to their friends a British-grown pine apple of first-rate qualities; or, if they did, they must accompany it with the needless information, "This came from my own hothouse." The bare idea that it might have been close-packed in a tarty ship, or occupied a place in a hawker's window, was too awful to allow to be suspected. A sprightly young lady, when walking with her grandmother, coaxingly asked her to purchase and take home some cucumbers, they looked so cool and nice. "Oh! no," says grandma. "Why not?" demanded unsuspicious girlhood. "Oh! I could not think of buying and taking home such things

when *everybody* knows they may be bought for a penny a-piece." This answer is merely one of similar thousands which might be given as a solution to the enigma—Why do so many voluntarily deprive themselves of true pleasure, in order that they may seem to follow in the wake of what is termed fashion? Some years ago a visiting party were loud in their acclamations of delight at the sight of some Cnothera and Catcliffy beds which certainly were very beautiful, for considerable pains had been taken with them. If they had known the plants before, the sight of them in fresh combination and contrast had, for the time, erased them from their recollection. The value of the articles soon, however, became a matter of inquiry, and when informed that, independently of the labour, which was considerable, the first cost for seeds had only been a few pence, there was a sudden silence, only broken by one, who had been loudest in testifying delight, stating somewhat quietly that, "*Certainly* they were pretty, but, after all, did they not look somewhat *common*?" Their being easily procurable dissolved the charm. Now, I dislike nothing even in flowers though it be common, provided it be useful or beautiful; nay, I like it all the better for its very commonness, because then stores of pleasure are opened up to a larger number of our fellow-creatures.

Trusting that such are the feelings of the majority of the readers of this work, we shall at times devote a page to the management of some of those floral beauties which many consider can only be grown in *stoves* alone, but which, with a little extra care and coaxing, and but very limited conveniences, provided you can only maintain in winter a temperature of from 45° to 50°, will flourish in the greenhouse during summer and autumn often better than if left in a plant stove, while thus the greenhouse and conservatory obtain an interest they would not otherwise possess. Having but very limited means for growing stove plants, I chiefly depend on them for thus ornamenting a conservatory during summer and autumn, and also a promenade or verandah protected with glass, but not heated by any artificial means. In both places, but especially in the latter, we have had during the summer, and shall have, the most of them, for more than two months to come, large plants in succession in bloom of achimenes, begonia, gloxinia, thunbergia, clerodendrum, torenia, vinca, lantana, gesnera, justicia, jasmium, stephanotis, gardenia, &c., contrasting with fuchsias, geraniums, salvias, &c. *Eranthemum* and *Aphelandra*, alluded to by Mr. Beaton, are too late, in general, for this place, but come in for the conservatory. These are kept in small compass during winter, and grown on in spring. I sometimes get caught by Mr. Frost, but, having a young stock, it does not annoy me much. As a commencement, we will first say a few words upon that beautiful plant, the

TORENIA ASIATICA, discovered by Toren, a Swedish clergyman, in China. When first I saw the flower, with its marbled-like, blended colours of blue, purple and light lilac, I thought it was among plants a gem of the purest water. It belongs to the 14th class and 2nd order of Linnæus, and the natural order Scrophulariaceæ, and thus is somewhat allied to the beautiful and well known *Maurandya*. The blossom is tubular, and monopetalous in its corolla, which is generally divided into four segments. The two upper stamens are conspicuous in the throat of the flower, joined together so as to form a beautiful arch, while the anthers, cohering and projecting, might convey the idea of an ornamental architectural key-stone.

Soil.—It flourishes in equal proportions of loam and peat, with a dash of silver sand. The soil must be rough, and the pots well drained. A few pieces of charcoal would be useful for both purposes.

Culture.—If kept a second year in the same pots, the plants will bloom profusely, if, after examining their drainage, they are top-dressed with equal proportions of such soil and dried cow dung. A plant thus managed exhibited a profuse mass of bloom in the verandah from the end of April to the end of October last year. It was then removed, and as the aphid had begun to nibble it a little it was not preserved any longer. Having flowered so freely, I resolved upon saving a few more large plants that had been cuttings in 1847, but unfortunately in resolving to harden them well they were placed on the floor of a vinery, and got more cold than was agreeable to them. I find that, even in attempting to keep them in a dormant state, the temperature should not be below 40°, and after the month of January they should have a little more, and all the light you can give them. I find, also, that many tender plants if injured to it gradually will stand much more cold before the day begins to lengthen than they will do afterwards. This fact is of importance to be known to those with limited means, who yet may have a forcing-house of some sort, which they set in motion at the beginning of the year, as *there* many tender plants many get a lift for a couple of months. The *Torenia*s I have now in bloom occupy and completely conceal trellises between three and four feet square; others are trained on circular trellises, others as bushes, three feet in height and three feet through. A young larch or spruce tree, peeled in the spring, with all the twigs peeled and retained, makes a nice support for all such plants to ramble over. Grown in baskets, and suspended so that the long shoots hang gracefully down, studded with blossom, is also a very interesting method of treating them.

All these plants have stood in the glass-protected verandah for nearly three months, beautifully in bloom, but not equal to the old plant formerly alluded to. If the autumn prove mild, they will remain to the middle or end of October, and then, if I could afford them room and heat, they would make fine objects all the winter; and, fresh potted or top-dressed in spring, would be ready for another summer's campaign. All of them were cuttings at this time last year, potted into sixty-sized (three-inch) pots in September, removed with many other things to the shelf of a pine stove at the end of October, kept in a temperature of from 55° to 60°, stopped to make them bushy, shifted into a size larger pot in the end of February, moved into 12-inch pots in March, watered carefully so as not to deluge the unappropriated soil until the roots began to work their way into it, then removed under the shade of vines that had shortly before shown fruit, trained, and from thence taken to the verandah in the end of May.

Propagating.—I am putting in a few cuttings just now; they are easily struck either with or without bottom heat, but will root quicker and more surely if placed in a cold close pit for a week, and then plunged in a little bottom heat. But why take off cuttings now, instead of preserving an old plant, and waiting until spring? Simply because, without entering upon the physiological bearings of the question, autumn-struck cuttings generally bloom more profusely than those propagated in spring. Without making the *torenia* a peg on which to hang general deductions, several things must be attended to for obtaining large plants in such a short time.

1st. The plants were grown very fast under the partial shade of the vines; the flowering principle was brought into operation when exposed to more light. It should always be screened from very bright sunshine.

2nd. The one-shift system, or nearly so, must be resorted to, and rough and lumpy soil be used. Those who shift their plants frequently, and use fine soil, must have *patience* in waiting longer for a large specimen.

3rd. Watering must be given with judgment. If you cannot water them yourself, and must depend upon an assistant, who gives *everything* in turn its regular pouring from the water-pot, then you had better content yourself with frequent shifting. Liquid manure may be given *sparingly* the first season, *liberally* the second.

4th. The difference of treatment, as respects stimulants in the first and second year, is based upon the principle, that if applied the first year there would be fine growth but little flowering. After the comparative standstill treatment of winter, there would be a great tendency to blooming the second year, and, therefore, to maintain for a long period that blooming process, growth by stimulation must be continued.

R. FISH.

THE KITCHEN-GARDEN.

ASPARAGUS.—As long as the asparagus continues to make growth, assist the beds by the application of liquid from the cesspool, sewers, farm-yard, or pig-gery, or of liquid manure brewed from the excrements of animals, guano, salt, or soot. When the weather is showery, thin sprinklings of salt may still be applied amongst the growing asparagus with much benefit. The beds should at all times be kept free from weeds, and the surface of the earth well loosened by the hand scarifier. We are always sorry to observe any neglect on these points; for when weeds are thus allowed to luxuriate and run to seed, they rob the asparagus to a serious extent, and this, added to the injurious practice of maintaining the cutting season too long, weakens the plants very materially; the roots canker and die away, and the beds become thin of plants from exhaustion, at a time when they should be in a state of the greatest luxuriance for producing an abundant return of strong shoots for the following season.

CABBAGE.—Continue to prick out abundance of plants, so that there may be a choice of good strong ones when the season arrives for planting the full and general crops of this vegetable. We plant the whole of our cabbage, and indeed all our vegetable, crops on sloping banks; and as it is possible that many of our cottage readers may not have had the opportunity of reading our description of these garden banks, we will here describe our system.

SLOPING BANKS.—It is as easy to trench the soil into sloping banks as to flat trench it; and as there is a great variety in the depth of different soils, so there must also be variety in the commencement of the sloping bank system; and no established rule can be laid down to suit all gardens. As we have before stated, never cast up in trenching too much of the subsoil on the surface at one time, but fork it up to a considerable depth at each trenching, letting it remain as loose and rough as possible at the bottom, so that, by the fertilizing influence of the air and the rain, the freshly forked earth may be prepared for mixing up with the surface soil at successive trenchings. By this means the most shallow, tena-

cious, unfertile soil may be made in a few years very valuable and productive. As an example of this, we some years since commenced operations on a shallow sandy piece of ground, which had not sufficient depth of soil to admit of the full length of the spade's blade being thrust down without bringing up a portion of the hungry unfertile subsoil of red sand, so that, on beginning to form our sloping banks, we could not allow them to be made more than four feet wide at the base, and only one foot higher in the centre than the natural level of the soil; but now, where there were not ten inches of workable surface soil a few years since, we have from three to five feet depth of the best and easily worked soil, capable of producing abundant and luxuriant crops in close succession. Indeed, we never allow the ground to lie idle a day; and our banks are now formed 12 feet wide at the base, and from three to four feet high in the centre. Our practice is to mark our ground at the intended width, allowing a foot between each bank for alleys, and commence our formation at one end by casting out the trench for one, two, or more banks, according to circumstances; for, the ground being equally divided, the same width or quantity of soil is always left to return with from the opposite end, and thus much trouble in wheeling and removing the earth from end to end is prevented.

Instead of laying the earth smooth and fine as we proceed, we form the slopes as roughly as possible, or cast the earth into ridges as open as can be, to admit of the influence of the atmosphere. This influence is of essential consequence if the soil has been previously manured with charcoal, and is to be cropped at once. We then fork, or scarify, the surface down, and sow or plant immediately, without making too fine a tilth, for often, if the surface is made too fine, and heavy rain should follow close upon the operation, the best prepared earth becoming caked or surface bound prevents the kindly coming up of the young seedlings, and starves the young plants. The soil placed in this sloping position is healthy at all seasons, which is a great advantage to cropping; it is also convenient for surface hoeing, planting, sowing, or gathering the crops. These banks have also a pleasing appearance for kitchen garden crops, and various aspects are thereby secured. One bank, also, shelters the other from cutting winds, securing more healthy plants, and producing earlier crops from the warmest sides.

Where one bank is only to be made, we mark out our space the intended width, run a line up the centre, make a mark, or place down a few sticks; commence at one end, by carrying one spit in width on each side of the centre, casting both together, forming a ridge, then following by casting up the sides to it, breaking up the subsoil as we proceed. Another way, which we also practise, is first marking out one bank as above the desired width for two or three, and commencing at one end by taking out a trench the entire width, and trenching the whole into a sloping bank as we proceed, mixing in the manure regularly when any is to be applied, and leaving the surface in rough ridges the cross way. We also trench down all the refuse that comes to hand, char everything that is convertible and cannot be turned to better account, and apply the same to our crops of all kinds.

YOUNG CAULIFLOWERS AND LETTUCE.—If close humid weather prevails, sift dry dust amongst those just up, which will prevent the ravages of canker and mildew. Sow again a little of the *winter lettuces* to stand in the seed bed. Those who grow *cauliflowers*

under glass should have it now washed in readiness, and the bed of sweet soil prepared.

ONIONS.—Sow now again for standing the winter for spring planting. JAMES BARNES.

ERRATUM.—At page 258, for "sow leeks," read "plant leeks."

MISCELLANEOUS INFORMATION.

ALLOTMENT GARDENING FOR SEPTEMBER.

We are now approaching fast to the confines of the year, and the sere foliage and changing tints of sober autumn, russet clad, will soon remind us of the return of that period where the old maxim, "safe bind, safe find," will be of general application. We here, of course, allude to the housing or collecting of winter stores, whether it be the potato, the onion, the carrot, the parsnip, the beet, or the Swede. It is certainly somewhat early to sound the note of preparation; we do so, however, in order to call our allotment friends to account, to put them on the alert in due time in making provision for the approaching dull period of the year, and in order that they may not be taken by surprise. We may here express a hope that those who have been advised by our allotment papers, and who have earnestly put in practice the maxims therein laid down, will now begin to find that "the sweat of the brow," consequent on earnest cultivation, is about to be amply repaid by prospects of a good wintering, added to which we must also include the happiness arising from a consciousness of manly independence, that glorious product so peculiar to the British soil, and which gives to her sons that sturdiness and that moral weight which is, and has been, the admiration and the envy of our continental neighbours. Long may it flourish and increase. Now to business. Our labours will at this period be somewhat light in addressing ourselves to those who have been gardening in earnest through spring and summer; to the sluggard we may merely address the words of Solomon, "Go to the ant." The first feature of allotment affairs that strike us is the commencement of the storing season, and, as foremost on the list, we give

THE ONION.—This is a most important item in the cottager's fare; we were almost going to say his only condiment, but we are forcibly reminded, at the same time, of his pickled cabbage, his nasturtiums, &c. &c., for, now he can cultivate his vinegar plant, we do hope to hear that his comforts are in the ascending scale. By the time our monthly remarks reach allotment holders, many will have drawn their onion beds, especially in the south. Many more, however, will find them a tardy harvest, particularly those of the north, and who well know that it requires some care, if the weather prove wet, to get them housed in keeping order.

BENDING DOWN ONIONS.—We have often heard it argued as to whether onions should be bent down or not; the question, however, lies in a narrow compass, according to our views. We say, if the summer is fine, and your onions being forward fall down of themselves, so much the better. If some of these conditions are reversed, and you find your onions still unbending towards the end of August, why then, we say, by all means bend them down, and thus induce a more early ripeness, and, by consequence, a better keeping store. We have also another reason for this

proceeding: we are anxious that the allotment portion which has produced a crop of onions should be re-cropped immediately. This is, indeed, the earliest root-crop ground which comes to hand, and if our advice, as to the sowing of the dwarf cabbage or colewort in June, has been acted on, the plants will be ready for this very purpose. They will, however, need a little manure, and such need not be dug in deep; we would rather have it within four or five inches of the surface, for the crop we suggest must have obtained full growth by the middle of October; some very rotten manure, therefore, should be selected. But to return for a moment to the onions: how are they to be dried? This, in backward or damp seasons and in our northern counties, is an important question. They are far best, in our opinion, dried by artificial heat, that is to say, in a warm room, unless the season is dry and hot, when we have known them dried as perfectly as though they had been in a kiln. The allotment holder, however, has not always convenience for indoor drying, but he can keep them in baskets, and carry them in and out daily, for the night dews in autumn frequently retard their drying as much as the sunshine or wind of the previous day had advanced it. Our onion practice is, in pulling them up, to place the root-end to the sun as we draw them on, the very bed in which they grew. Onions grown in wet soils, or soils which have long been under culture, and which of course possess a considerable amount of humus (the black remainder of putrid vegetable matters), are very apt in damp seasons to engender a mouldiness at the root, which if not arrested speedily becomes a putrefaction or gangrene, striking at once at the vital or keeping properties of the bulbs; such is, in general, arrested immediately by laying them with the root-end to the sun for a week or so. After this the necks (withered stems) may be partially stripped away, and the thorough drying accomplished by the means before described. Those who rope them will pursue another course: here the means employed reduce the number of mischances much; indeed, roping is, after all, the safest plan for those who can spare the time.

POTATOES.—We are sorry to find that that old foe, the fungus *Botrytis infestans*, is at work on the leaves of the potato in all parts of the kingdom. It would appear, however, that the evil is much mitigated, for it has not only made its appearance later, but its progress is not marked at present with that degree of virulence which characterized it in former years; neither do we expect that it will prove so bad, for we lay the utmost stress on a more perfect elaboration of the juices of the potato. We have had much sun-light in the early part of the summer, and manure the idea—fallacious in our opinion—of Mr. Cuthill and others that sunshine had caused the disease, we still think that this mellow and bright state of atmosphere is everything with the potato. Added to this, it is gratifying to find that some country folks, who formerly were most difficult to win over to any opinion but that they had been accustomed to, have at last been persuaded that planting potatoes through the end of April and up to June is not the way to ensure a crop in difficult times, and that what will prove a restorative in such a case will not be bad practice when all is set right again. However, we must try to make ourselves useful as to disease cases with allotment holders. We have ever been of the opinion—based, as we think, securely on facts—that when the plague spot or blotch has fairly invested the plant it is high time the haum parted company with the potatoes. There can be little doubt that

the virus engendered by an arrested or stagnant elaboration of the sap descends after it has been formed into the tubers, and many persons have taken, as we think, a wrong impression, from the fact that this upper series of tubers being always invested first with the disease, it must necessarily be atmospheric in its origin. When, however, we consider that the upper series must of necessity be the first to receive the diseased fluids, we may fairly pause before we adopt the atmospheric or any other theory. It is surely hardly worth while casting about for far-fetched reasons when cogent ones, although simple in appearance, lie close at hand. Our digression, however, must cease, and our main point must now be with the allotment cultivator, to induce him to plant cabbages of the colewort character on ground from which potatoes have been removed. We recommend this course on the presumption that he has a cow or a pig, for in such cases it is impossible to produce too much from the narrow compass allotted to such holders. Before recropping so late in the season it behoves him to take a prospective glance at the coming year, for we would by no means permit a secondary crop to interfere with any sound policy connected with the next year's operations. As before observed, these coleworts may be planted at one square foot apart, and they will prove very useful to the family through November and December, whilst the refuse from them will of course go to the pig, for even the roots will be devoured.

MANGOLD.—Towards the end of September a few of the lower leaves which begin to change colour may be progressively stripped away, and given to the cow or pig. Any "bolters," too, or those which run to seed, should be drawn up and given to the stock, to let the sun shine on their neighbours. No other culture will be necessary for this root.

CARROTS.—If any of the carrot crops are badly "grubbed," they should be drawn betimes and employed in pig feeding, for if allowed to remain long they will scarcely be usable. No further culture necessary until storing time.

PARSNIPS.—Their culture merely consists in keeping down weeds.

SWEDES.—Thorough weeding will be necessary, and those which were transplanted late after potato crops should receive a careful hand hoeing.

COMMON TURNIPS.—Either hoeing or hand thinning must here be resorted to; many persons lose a great weight of root by leaving them too thick. Such as the stone turnip or Dutch should be set out at about eight inches apart. Any early crops which are becoming overgrown may be pulled, and their tops cut off rather into the quick; they may then be placed on a dry piece of ground, and soiled over like potatoes.

PEAS.—These, most likely, are all used up long since; if any remain which are getting too hard, they may be pulled up, dried on the hedge, and then thrashed out for boiling purposes.

BROAD BEANS.—Any of these which remain may also be dried; they will make excellent meal when ground. One portion of this to three of Indian corn meal makes capital pig flour.

RUNNER KIDNEY BEANS.—Keep these close gathered, except a few at the bottom for seed. Their long bearing depends on keeping the large pods well under.

GREENS OF ALL KINDS, BROCOLIS, &c.—All these things should be well soiled up, if not already done, and one clean weeding given before they cover the ground.

CABBAGES.—If any hard white cabbages remain, they should be cut, and given to the cow or pig. They will produce sprouts which will be extremely useful.

LETTUCES.—It will be advisable for the cottager to sow a little Bath eoss and the Hammersmith cabbage lettuces in a warm nook of light soil. The first week of September is the proper time, provided the soil is good. These will make small stiff plants before winter, and, if covered up with dry litter as soon as frozen, they will keep through the winter, and will produce fine heads in May.

PICKLES.—Our allotment friends must now begin to think of their pickles, and amongst them we think that cabbage, onions, and nasturtiums, will prove the least expensive and most useful. The nasturtiums must be gathered once a week or so, and care must be taken to pick them clean before frost can seize them, for they are easily spoiled.

HEDGES.—Any arrears of dubbing should be at once brought up, and we advise a general clearing of all boundary fences before the days get too short. The dubbings and all the coarse weeds or other refuse may then be got together on a spare bit of ground, and burnt, or rather charred. The residue may then be stored away in any dry corner, and it will be found useful in the ensuing spring to sow in drills with root crops, especially carrots or turnips.

THE BEE-KEEPER'S CALENDAR.—SEPT.

By J. H. Payne, Esq., Author of "The Bee-keeper's Guide," &c.

DEPRIVING.—The time has now arrived for the final deprivation of bees, and where it has been found necessary to place two or three receptacles for honey upon the stock hive, the uppermost one may certainly be removed, and generally the one next to it; but the greatest caution must be exercised in taking any more, for twenty pounds, at least, of net honey must be left in the hive for winter store, and should the hive itself not contain that quantity, the box or boxes must be left on, and removed when emptied by the bees some time between December and March; certainly not later than that time, or the queen may possibly go up and deposit eggs in the empty combs. The method of getting the bees out of the glasses or boxes has already been given at page 105.

DRONE KILLING.—The bees have been later this year in killing the drones than they usually are, which I believe may be considered as a proof that the honey season has also been later. The work of slaughter was commenced with me on the 26th of July, and is now (August 10th) going on most furiously.

BEES PROGNOSTICATORS OF THE WEATHER.—I am not aware that bees have ever been placed in the list of those animals which are said to foretell the changes of weather, as many animals of the feathered and insect tribes are; but in my opinion they stand foremost of the weather-wise. A nice observer, by looking at them in the early morning during the working season, will very soon be able to form an opinion as to what the day will be, and that almost to a certainty; for they will sometimes appear sluggish and inactive, although the morning is very bright and showing every appearance for a fine day; but the sun soon becomes clouded, and rain follows. And, again, the morning may be dull and cloudy, and sometimes rain may be falling, when they may be observed going out in considerable numbers, and as sure as this is seen the day becomes bright and fair.

UNION OF STOCKS.—Those persons who happen to have very old stocks which are worn out, either by the decay of the hive which contains them, or by the blackened and almost useless state of the combs, from having brood hatched in them for many years, may unite them very safely to swarms of this year, or to stocks of two or three years standing, in the following manner, and for which I am chiefly indebted to that excellent apianian, Gelien. The operation is performed very easily, and without danger. I have frequently accomplished it without any protection whatever. The proper time for effecting these unions will be either at the end of September or very early in October. Those stocks which are in sound hives, and the combs not much blackened by time, but upon weighing are found to require four or five pounds of honey to carry them through the winter, had better have that quantity supplied to them *now*; while those that are in bad condition, both as regards hive and combs, as well as those requiring eight or ten pounds of honey, had better be united to other stocks, for to feed them will be too troublesome, as well as too expensive. The manner of procedure is thus: upon a fine morning commence by blowing a few puffs of tobacco-smoke with a pipe in at the door of the hive you intend to clear; then turn up the hive, and place it upon its top upon the ground, and give it a little more smoke sufficient to force the bees to retire within the combs; then proceed to cut out all the combs in succession, with the knife described at page 217, beginning with the smallest, sweeping the bees with a feather off each piece back into the hive, placing the combs one after another into a large dish, keeping it at the same time covered with a napkin to prevent other bees coming to it. The last comb will be found the most difficult to come at, being completely covered over with bees. This operation may be performed without gloves or any protection whatever; the only weapon required is a pipe or a cigar. The combs being thus all removed, the bees remain as completely destitute of food as they were on the day of their swarming. Replace the hive upon its board, in the spot it occupied when full, and leave it till the evening, by which time the bees will be clustered together like a new swarm. During the whole of the day, which is supposed to be a fine one, they occupy themselves with the greatest earnestness cleansing their house and removing the little fragments of wax that have fallen on the board, that any one who did not know it had been emptied would take it for the best and strongest of the hives. Just before dark, when they are all quiet, blow a little tobacco-smoke in at the door of the hive it is intended for the deprived bees to enter, and which should be its next neighbour, either on the right hand or the left, then, turning it up and resting it upon the ground, sprinkle it all over with honey diluted with a very little water, especially between the combs where the greatest number of bees are seen. Five or six table spoonsful generally suffice, but at times more may be required. If too little be given, the new comers might not be well received—there might be some fighting; and by giving too much the risk of drowning might be incurred; the sprinkling, however, may cease when the bees begin to climb up and shelter themselves on the sides of the hive. Then take a table-cloth, spread it upon the ground, and with a smart and sudden shock throw upon it the bees out of the hive that was deprived of its combs in the morning, and immediately place the hive that has been sprinkled, and which they are intended to enter, over them, raising it a little on one side with a wedge. They will immedi-

ately ascend and join the sprinkled ones. Very early the next morning put the hive in its place. It is very desirable to place it precisely in the centre of the place they both occupied before the union. Three stocks may be united in the same manner, and with the same success, taking care only to empty in the morning those on each side, and make the bees enter the middle one in the evening, after it has been sprinkled with honey. In this case it is not necessary to remove the one that unites the three families. As Mr. Taylor very truly says, "whether the fumigated hive be new or old, poor or rich in honey, the plan of expulsion of the bees is applicable, and that with quite as little trouble, expense, danger, or loss of time, as by suffocation with brimstone. The bees thus preserved in existence are a clear gain to the proprietor of so many able and willing labourers, eager to enrich him in the early spring, and merely transferred to other winter quarters with no extra expense of feeding whatever. What, now, can be urged in extenuation of a wanton waste of valuable life? The plea of necessity no longer avails as an excuse for what henceforth becomes an act of deliberate folly—perhaps I might say wickedness—that of killing bees."

It is a most extraordinary fact, that this doubled, or trebled, population, will consume no more honey (if so much) in the winter as a single one; "the why and the wherefore" of this I leave for others to decide; I am satisfied of the fact. Some persons, reasoning from analogy, say that as cattle well housed require less food than when exposed to wind and rain, so where there are many bees in a hive they can keep themselves warm by hanging close together instead of eating; so that in a full hive the same quantity of honey goes farther than in a weak one, each bee eating less.

METHOD OF DRAINING HONEY FROM THE COMBS.—Place a sieve, either of hair or canvass, over an earthen jar, cut the combs containing honey into small pieces, and put them into the sieve; let them be cut in an horizontal direction. It is better to slice them twice, that is, at the top and the bottom, than in the middle; crushing or pressing should be avoided, for, as a portion of brood and bee-bread generally remain in the comb, pressure would force it through the sieve, and the honey would thereby be much injured both in colour as well as flavour. It is very desirable to have two sieves, for in every hive there will be two kinds of honey, the one almost colourless and fine flavoured, found at the sides of the hive; the other dark and not so good, stored in the centre; these should always be kept separate. The draining process may occupy, perhaps, two days; but the largest quantity, as well as the best quality, will be drained off in three or four hours. The honey should be put into jars immediately, and the jars filled and tied down with bladder, for exposure to the air, even for a few hours, very much deteriorates its flavour. I may here observe that honey in the combs keeps remarkably well if folded in writing paper, and sealed up so as to exclude the free entrance of the air, and is placed in a dry warm closet.

PREPARATION OF WAX.—Having drained all the honey from the combs, wash these in clean water (this liquor, by exposure to the sun and air, will make most excellent vinegar); put them in a clean boiler with some soft water, simmer over a clear fire until the combs are melted, pour a quart or so into a canvass bag, wide at the top and tapering downwards, like a jelly bag. Hold this over a tub of cold water; the boiling liquor will immediately pass away, leav-

ing the liquified wax and the dross in the bag; have ready a piece of smooth board of such a length that one end may rest at the bottom of the tub, and the other end at its top; upon this inclined plane lay your reeking bag, but not so as to touch the cold water, then, by compressing the bag with any convenient roller, the wax will ooze through and run down the board into the cold water, on the surface of which it will set in thin flakes. Empty the dross out of the bag, and replenish it with the boiling wax, and proceed as before until it has all been pressed. When finished, collect the wax from the surface of the cold water, put it into a clean saucepan with very little water, melt it carefully over a slow fire, skim off the dross as it rises; then pour it into moulds, or shapes, and place them where they will cool slowly. The wax may be rendered still more pure by a second melting and moulding.

MY FLOWERS.

(No. 41.)

I do not admire *marygold*—they do not please my fancy; yet they are gay and rich looking, and at this season they enliven the garden with their deep golden flowers. There is an interesting tradition connected with the French and African *marygold*, from which the Italian name, that of "*fiore di morto*," or death flower, most probably has sprung. They are natives of America, and are said to have first appeared on the soil where the blood of the unhappy Mexicans flowed so freely, when sacrificed to the Spaniards' thirst for their country's gold. Although in these days of purer light and higher civilization such horrors are not known, yet do we not need continual warnings to guard us against making "gold" our "hope," which is equally perilous to the soul? We may "do no murder," but we may unwittingly worship a god whose name is not "the Lord." If this cottage flower brings this truth sometimes before our eyes, it will, indeed, be worthy a place in every garden, although its colour and scent may not please every taste. The French and African *marygold*s are both American in their origin, yet they adorn the gardens of India, Japan, and China, where so many far more beautiful flowers abound. The African variety was brought into England about the year 1573. The common *marygold* is, I think, a prettier flower than these; it is a native of southern Europe, and has long been a useful and favourite flower of the cottage. The leaves of the flower used formerly to be frequently stewed upon broth to add a peculiar flavour, and I can still remember the dislike which I ever had, as a child, to their taste and smell.

The hollyhock is still blooming, and adding much to the beauty of the garden. In large groups, among shrubs, this effect is extremely good, and the variety of colours enlivens the background, and brightens the dark mass of evergreens. It is a native of the glowing east, of the cooler soil of southern Europe, and also of the freezing climate of Siberia. How rich, and beautiful must its rose-like flowers appear among the desolate plains of that dreary land, where there is so little to cheer the heart of man! If the inhabitants of those northern latitudes have any taste for the beautiful things of nature, how they must cherish their few flowers, and what a treasure must the hollyhock be during their short and hurried summers! A single yellow variety has been found growing wildly even in Africa—thus remarkably connecting the hottest and the coldest regions,

and reminding us of the blessings of a temperate climate, where neither frozen plains nor burning sands distress us, and where our seasons, changeable as they are, give us so many blessings. We need to be reminded of these things; we are too apt to feel dissatisfied with what we have and are; and "a voice" from our gardens can deeply and profitably instruct us. A voice from the fields, too, makes itself heard at this season, with loud and affecting eloquence. The interesting labours of the harvest not only gladden our hearts with the abundance of our Father's mercies, but they set forth a solemn parable practically before our eyes. As we watch the busy hands of the reapers, and the tall, waving corn falling under the stroke of the sickle, we are forcibly reminded that "so shall it be in the end of this world." "Who hath ears to hear, let him hear."

The broom has indeed spoken truth—there is a rich and abundant store ready to be treasured up. Let the poor man's heart rejoice, and praise "the Lord of the harvest" for His bountiful goodness to the children of men; let the heart of the rich man rejoice with thankfulness, but with trembling also, lest he should account his "life" to consist "in the abundance of the things which he possesseseth." It is remarkable that the *cultivated* grain—the wheat, oats, barley, and rye—are never found in any country growing wild; no roving nation possesses them—their existence marks the *tiller of the soil*, and although they should be found in the midst of solitude and silence, yet man *has been* a settler there. It seems as if an infinitely wise God permitted not these precious fruits of the earth to waste their valuable produce, but to be kept exclusively as the reward of labour. How should our hearts swell with gratitude for such a striking provision for His creature, man! How much I wish that the beautiful and solemn salutation of Boaz and his reapers was initiated in this our day! A fuller blessing would be poured out, if men regarded God in all they said and did, and great would be their peace.

The rich scarlet berries of the mountain ash are now gleaming brightly among its feathery leaves. It is so ornamental a tree, that I am surprised at not seeing it more frequently, both in the garden and the copse. It gives such life and brilliancy to the shrubbery and the woods, that it should be encouraged in every spot, and would add greatly to the beauty of the autumnal scenery. I remember the striking effect produced by several of these lovely trees mingling with the foliage of a picturesque copse among the Welch mountains. It clothed a rising ground, forming a sort of amphitheatre, at the foot of which rushed one of those mountain streams of which "lowlanders" dream not. I was then a child, but I have never forgotten that amphitheatre of trees, studded with the deep red bunches of the mountain ash; and to this day the sight of one of these trees sparkling in its autumnal glory always carries me back to the lovely banks of the Irfon. The foliage in itself of the mountain ash is graceful, and the white flowers in the spring are delicate and pleasing, rendering it a suitable tree for the pleasure ground, as well as the grove. *Useless* trees are not desirable in cottage gardens, but a cheerful looking mountain ash planted in the hedge, in some nook or corner, would not, perhaps, be in the way of any better tree, and would add much to the pleasing appearance of the road or common, as well as to the cottage. What ever tends to beautify an English cottage, whatever makes it appear more cheerful, more snug and happy, adds to the moral beauty of our peaceful and highly

favoured land. Yet, beautiful as our cottage homes must ever be, not merely as pleasing the eye, but as evidencing the quiet domestic enjoyments of our population, let us not set our hearts upon them, or upon *any thing* here below. Our purest earthly affections may become idolatry—our simplest and most useful possessions may swell into idols. Let the cottage gardener ever remember that "a garden of herbs" perilled the soul of a king of Israel.

HARDY CYPRIPEDIA.

As many persons find some difficulty in cultivating the *Cypripedia* (Lady's Slipper), and as I have been tolerably successful in cultivating two species of that genus, viz., *C. spectabile* (Shewy Lady's Slipper) and *C. pubescens* (Downy Lady's Slipper), a short notice of the method which I adopt may, perhaps, be acceptable to some of your readers. I grow both of these plants in large pots, well drained with potsherds covered with moss; the compost in which I plant them is composed of equal parts of peat, i.e. good heath-mould and loam, so strong that it may almost be considered as a friable brick-earth; to these I add another ingredient, to the use of which I may probably attribute my success, namely rotten, or rather half-rotten, sticks taken from beneath a wood-stack. The quantity of these is almost equal, by measure, to that of the peat or loam. The pieces of stick are in such a state of decomposition that they will easily yield to pressure between the finger and thumb. I also mix with the compost some charcoal. I keep the pots in winter in a cold frame; for, though they are very hardy, I think an excess of moisture is injurious to them.

Both of these plants last spring attained the height of at least 18 inches, and flowered most beautifully; the slipper of *C. spectabile* was at least as large as a pigeon's egg—I had almost said a bantam's egg. The plants under this treatment also increase, not, indeed, very rapidly, but I think they sometimes double themselves in the course of the year. I am afraid, however, that none of the *Cypripedia* can be cultivated successfully in a large town, or even within the influence of the smoke and other miasma of a town, since I believe they require a very pure air. I need hardly add that the plants should be placed in a cool and shady situation in the summer. I grew *Cypripedium calceolus* in the full ground, in a mixture of peat and strong loam, but I conclude that it would succeed if treated in the same way with its congeners, *C. spectabile* and *C. pubescens*.

I also cultivate successfully another orchideous plant, which is rather handsome, though not to be compared with the *cypripedia*, viz., *Scoparius palustris*. This plant is found abundantly in the peat bogs of this part of the country, or, I am afraid I must say, *was once* found abundantly, as most of the bogs are ploughed up, and many beautiful and rare plants have become almost extinct. I grew this plant in pure peat in pots, which I set in a pan of water in summer, and plunge in the open ground in winter. This plant increases rapidly. Though most of the orchideæ, which form the tuber peculiar to that tribe of plants, are difficult to cultivate, I do not think that that is the case with these orchideæ, which do not form a tuber.

REV. EDWARD SIMONS, *Oxington, Norfolk.*

EVERGREENS FOR CHALK SOILS.

In a late number you make the observation that a chalk soil is unfavourable to the growth of evergreens. Since a very considerable proportion of the southern part of this island consists of chalk, and since none

of our strata more requires the aid of evergreens than the chalk does, to make a cottage habitation snug and comfortable, you will, perhaps, not think that it is time ill bestowed if we pause a moment to inquire whether the antipathy of evergreens to chalk is universal, or whether there may not be some which do not refuse to assume a vigorous and healthy aspect upon this, which is, for many intents and purposes, so healthy, so comfortable, and so desirable a site for a residence. Unless we can find such I would not attempt to plant there, for nothing looks so meagre, desolate, and poverty-stricken, as to see a plantation of yellow, sickly, unhealthy evergreens, pining and dying away around a dwelling. A naked down is cheering and princely in comparison of such an abortion. Our native yew, the weed of our hills, which, if suffered to grow without being mutilated, becomes a most beautifully-formed tree and an admirable shelter, deserves the first place. The black Austrian pine (*Pinus Austriaca* or *nigricans*), a rapid and sturdy grower, succeeds admirably on the chalk. The *Arbor vitæ* (*Thuja*), *Cupressus viridis*, *C. torulosa*, and, indeed, all the cypresses, also thrive well here. Our native juniper, which spontaneously clothes the sides of many of our hills, must not be forgotten: all the junipers succeed well here. The graceful *arbutus* and lovely *laurustinus* afford a decoration to the shrubbery which leaves scarcely anything more to be wished for. The beautiful evergreen barberries, as well as our native variety ornamented with its brilliant scarlet fruit, thrive well on the chalk. The various cotoneasters, some of which are absolutely evergreens, and others nearly approach to that state, lend their willing help; and the box finds this of all soils the most congenial to it. I had almost forgotten to mention that the holly (*Ilex*), though not a rapid grower on the chalk, is healthy and sturdy, and in process of time becomes a large tree. Here, then, are materials with which the chalk cottager may exclude both the summer's sun and winter's cold, and may create a suggestiveness of variously-diversified beauty. Doubtless, planters of more experience may be able to add largely to this catalogue, but *ne sutor ultra crepidam*.
W. P. T., Hampshire.

BLACK BARLEY.

SOME weeks ago I observed an inquiry in THE COTTAGE GARDENER about *black barley*, and, as I have tested it this season, I think the result of my experiment may prove interesting to some of your numerous subscribers.

On the 7th of October last I dibbled some of the seed, at the rate of only two pecks per acre, on some of the poorest land in Middlesex—this was after potatoes—and on the 27th of January last I sowed a further portion after turnips. The vegetation was very rapid and luxuriant, and the barley tillered surprisingly, as many as 60 stalks arising from one seed. It stood the winter, such as it was, remarkably well, and on the 6th of June the whole was in full ear, and measured 5 feet 6 inches high.

I commenced cutting the winter barley on the 11th of July, and the spring sowing on the 28th of the same month. Part of the former is already thrashed, and, considering the destruction by slugs and the enormous quantity consumed by sparrows, the produce is most satisfactory. At least one-third of the whole was destroyed by birds, *owing entirely to its early ripening*, and about one-eighth by slugs, so that, as nearly as I can calculate, the produce may be taken at nearly 60 bushels per acre, but no more. The straw is excellent, and had the seed been sown some-

what more liberally it would probably return about 2½ tons per acre. The crop from which I procured my seed was grown on excellent land in Worcestershire, and there the produce was said to be upwards of 70 bushels per acre. Indeed, of this I have little doubt, as I saw the crop just before harvest. The straw in that case was *fully seven feet high*, and altogether formed the most magnificent cereal crop I have ever seen. I have not yet thrashed any of the spring barley, but I am disposed to think the average will rather exceed the autumn-sown in point of grain, while in straw it will be deficient. I will now only add that each ear has six distinct rows of grain on it, and that they contain from 65 to 84 grains together. The ground on which it was grown was cleared in time for me to sow Aberdeen turnips, although, had the weather been wetter, I should have transplanted Swedes, and probably had a good crop. Thus, by the introduction of this valuable crop, two crops per annum may be *certainly* relied upon on all well cultivated farms. A sample of the grain, with the straw, may be seen at Messrs. R. Bampton & Co's, 176, High Holborn, who will, I am sure, be happy to exhibit it to any of your friends.

T. PRICE, *Eastcott Cottage, near Pinner.*

DIGEST OF GERANIUM CULTURE.

YOUR worthy and intelligent coadjutor, Mr. Beaton, in his very clever and interesting paper on the geranium, in the fourteenth number of your valuable work (vol. i., p. 156), says he intended to draw up in one small paragraph the chief points in the "account of Aunt Harriet's management" there given, but on consideration he thinks it would be much better if his reader were to do that for himself—it would help him to recollect it. Now, as I have followed his recommendation, and drawn up the paragraph in my own way (though not a "small paragraph"), to assist my recollection, I think, perhaps, if you have room for it, it may (just at this time, when the principal directions it contains are coming into operation) be useful to others, and not only give Mr. Beaton an opportunity to add something new and pleasing to it, which he is so very capable of doing, but draw some useful observations or queries from other correspondents on the subject.

DIRECTIONS.—When the plants have done flowering in the summer, turn them out of doors, to rest and recover themselves; give them no strong water then, but just enough rain-water to keep them from drooping. After a little while they will recover, and begin to grow away freely at the top. Then cut them down, letting them first get dry enough to droop, to prevent bleeding. Withhold water from them for two or three days, that the wounds may dry and heal readily. Cut all the branches down just above the three best placed buds next to where they began growing from the older wood, and if there are any weak or very small branches cut them down to the last bud, so that it may only produce one shoot next season. After cutting down the plants, slightly water them for ten days or a fortnight, or till the young shoots are about an inch long, and have three or four leaves each; then shake away all the soil from the roots, and cut off all the largest roots to four, five, or six inches from where they first issued; trim the small roots a little; then immediately repot them in very small pots, just large enough to hold the roots without being cramped. It should be rich mould, and about one-eighth part sand mixed with it; put plenty of crocks at the bottom, and a layer of moss over them, before putting on the earth; then water the

plants with a rose watering-pot, to settle the earth round them and wash the leaves. For the first ten days or a fortnight keep them in a close warm room without sun. In about six weeks, say late in September, shift them into larger pots, and put a layer of rotten dung over the crocks and moss. Turn the ball of earth into the new pot, raising it nuder and filling it round with fresh mould. Look at the healthiness and general appearance of the roots; if you find them all right, put them into the flowering-pots at once; but if not, put them in smaller pots, in order to shift them into larger pots in the spring. Keep them again a little time in a close room after this remove, but a little sun will not then hurt them. If there are more than six or eight shoots on a plant, rub off the others where they grow thickest together or are weakest, and if they crowd each other tie them to small sticks set in round the pot, so as to keep them in a slanting position, trained out and free from each other. About the end of January stop or pinch off an inch or two of the shoot, if you wish them to blow late or about midsummer. At the end of February stop others, to blow later. No stimulants or liquid-manure to be given them till the blossom-buds appear, then soapsuds or other strong water may be used, adding one-half rain-water to it, and giving the plants clear water alternately with this mixture. When the room is cleaned or dusted at any time, put the plants outside; if the weather is fine and warm, or otherwise, carry them into another room.

T. MORGAN.

[Mr. Beaton highly approves of this epitome of geranium culture, and recommends all young gardeners to adopt a similar mode of impressing knowledge on their minds. He adds the following useful direction:—"When we want pelargonium-flowers all the year round, I cut a number of plants about the middle of April, and the bulk of our stock about the first week in October; and I keep stopping some of the plants until the end of May."—Ed. C. G.]

EXTRACTS FROM CORRESPONDENCE.

CHRYSANTHEMUM LAYERS.—In reference to your article on chrysanthemums (p. 230, No. 44), I fancy I can tell you of a plan pursued by my own gardener whereby not only the "25 per cent." of young layers may be greatly reduced, but not five per cent. even when "tongued" will be lost. As soon as the cut is made bind a little long moss round the wound, rather moist, and let it be secured by some fine bass, *but not too tightly*; you may then bend the layer as deep as you please into the pot, and I do not think more than *one* in *fifty* will break; the roots strike almost immediately through the moss, and I have found very good plants indeed from this process, quite as luxuriant and as quickly struck as from the plan you advocate, and in my own case very much less hazardous.—REV. C. H. BROWNE.

[This is a very good plan, but Mr. Beaton informs us that a *twist* given to the shoot about to be layered, just below where the roots are wished to issue, is nearly as good as tonguing it.—Ed. C. G.]

ASPARAGUS.—I invite my brother horticulturists to try an experiment with me. Observing that an asparagus root on one of my beds produced finer beads and in greater abundance than any other, I thought of raising seedlings from it, but year after year it produced no seed, therefore, like the mistress who had an ill-natured cook that would never instruct a fellow-servant, resolved on teaching one to be as good a cook

as the old one, so I resolved on trying to bring other roots to the standard of the favourite one. My first object was to give them somewhat of the character of the superior one, therefore I assisted them to be sterile like it, and their berries last year, when half-grown, were stripped off, an operation which may quickly be performed without destroying the foliage, which, of course, should be injured as little as possible. I cannot affirm that it was this treatment alone that produced all the advantage, for last autumn I used salt more freely than before (a pound to a square yard), but the result this year was finer asparagus and about three times the quantity that I ever before obtained from the same beds. After relieving the plants from their labour of seeding I think that a good soaking of liquid-manure should be applied. I dare say that more experienced gardeners than myself know all about this treatment, but as they have not benefited their contemporaries by telling of its success, I put it on paper, Mr. Editor, either to enlighten the cottage gardener or your Havanah.—B. M.

TO PRESERVE PYRUS JAPONICA APPLES.—We had collected them as they dropped off from time to time for their scent, and having at Christmas several looking rosy and ripe we pared them very thin and placed them in a well-covered jar, with their rind on the top of the fruit, and a very little water, and coddled them thus in a Bain Marie, keeping the steam in closely, over a slow fire, till they were soft. They soften more easily than the quince. Let them stand till cold. Prepare a good syrup of double-refined sugar: boil and skim it well, then put in the pyrus fruit to boil ten minutes, and set it aside a couple of hours; then boil them again till the syrup looks thick and the fruit clear. Put it into the preserving pots, and when cold tie it down. The same proportion of sugar as for quinces.

SAVING SEED.—Last year I resolved upon trying to save some garden seeds, and now I wish to give you the result of what I call a complete failure. I selected a few fine cauliflowers, two or three of the best kind of radishes, well-coloured and well-formed; one sort of lettuce, namely Bath Cos; and one good kind of cabbage. These being all I can prove at present, I wish to give you the result. Of the cabbage I have about half a dozen sorts, neither cabbages nor savoy; the radishes are neither turnips nor carrots in shape, varying in colour from a light purple to a complete black, and very tough, although well watered; the lettuces are not worth keeping; and the cauliflowers are full of green leaves, and a very dark brown in colour. Now, I find that, after paying a boy to keep off the birds, the value of the ground as regards other crops, and my trouble in cleaning the seeds, I had better have paid double for them, say nothing about the almost, I may say, total loss of my vegetables for this season; and what puzzles me the most is that I do not think there was a bit of seed saved within a mile of me, except that a cottager may have had a bit of turnip seed in one corner of his garden. Perhaps you will be so kind as to inform me, as well as others at the same time, the reason that we cannot depend on our own saved seed. I have learnt from some of my neighbours since, if they save a little seed, and have more than they want for their own use, no respectable seedsman will have it at any price.—R. STEVENS.

[Saving seed is a most precarious department of gardening. Cauliflower seed, to be true, has to be brought yearly from Italy. That of the Brussels sprouts can only be obtained perfect from one dis-

trict near the city from which they derive their name. The turnip seed in the cottager's garden near you was enough to cross and render untrue to stock all the cabbage and radish seed grown within miles of it, for bees travel much further. It is the knowledge that all seed is uncertain if not saved with the greatest care that compels seedsman not to buy it from chance growers. How could they confidently sell it to their customers?—ED. C. G.]

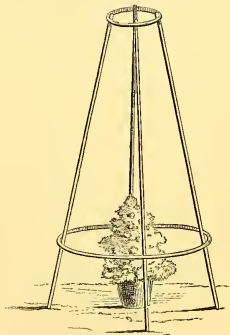
POULTRY FEEDING.—It has often surprised me that cottagers do not more frequently keep poultry; chickens are reared with little trouble, and kept at no expense. I now advise any young person who reads this to try and earn 1s 6d, and then to purchase a young cock and hen. Shut them up for a day or two till they are accustomed to the place, then let them have the run of a public road, or field in which cattle graze; they will then require feeding but once a day. And now as to what to feed them on. Do not buy a pennyworth. If you dine on potatoes, nothing can be better than their skins. I hope all my readers boil their potatoes with their jackets on: it improves the potato, makes it more wholesome, and feeds your chickens. At this season I dare say most of THE COTTAGE GARDENER'S readers have peas; if so, save the shells, and after the peas are boiled put them back into the same water, and let them boil whilst you are dining, then cut them into little bits, and mix them with crumbs from your plates (remember, "Waste not, want not"), and your poultry will live well on it. If this advice is thought worthy a place in so excellent a paper as THE COTTAGE GARDENER, I will next week tell you what to do when you have any eggs laid; and although you may not "count your chicks before they are hatched," yet I think you may reckon on a dozen eggs within three weeks or a month.—C. M. A.

WET-DAY GARDENING.—This is a wet day, and it has suggested to me a few hints for the cottage gardener on wet-day gardening. I am very fond of wet days, in a garden, at this time of the year. Whatever you may say to the contrary, I believe in the practicability of transplanting all annuals, even mignonette, by choosing a wet day for the purpose. Acting by your advice, I certainly did sow some annuals this year where they were to remain, and very fine clumps they have made, but in all quarters there are some gaps to be filled up, some unlucky combinations of colour to be remedied: for such alterations, commend me to a wet day. In the vegetable garden I have followed the practice of a tribe of small occupiers whom I believe to be lineal descendants of the serfs who tilled a certain monastic estate, whose ancient grange still stands in this neighbourhood. Early peas, early cabbage, early potatoes, are the forerunners of beet, the winter cabbage kind, and (on a warm border or on a hotbed) cucumbers, celery, &c.; and I find it best to dig in the year's manuring now, before transplanting. The great advantage of this method, both in the flower-garden and kitchen-garden, is that hand-weeding can be almost entirely superseded by planting rather than sowing. However, I believe that crops of onions, carrots, and parsnips, may be advantageously alternated with double crops, except in the case of early borders and favoured bits of ground protected from east and northerly winds, and lying well to the morning and forenoon sun. Such bits may always grow two crops a-year. I believe that some borders, and fields too, in these parts have grown early potatoes every year for a long time back. Another favourite employment on a wet day is to clear off many full-blown flowers and

all needless seeding plants; this ensures a fine flush of new bloom when the sun shines out again, and a repeated pleasure. As some of your readers have occasionally inquired about the economy of small holdings, and as I have not been wholly unsuccessful in my own experience of that kind of miniature farming or field gardening, I will at once refer with gratitude to the works of the Rev. Mr. Hickey, commonly called Martin Doyle, whose works just give the right sort of information, and whose pen I dare say you might engage for that department of your work if the writer be still alive and not quite used up.* He is great on pigs, poultry, and cropping.—VIBGYOR.

TO PRESERVE PEAS FROM MICE.—Having seen in the public papers a case of poisoning by arsenic, which was procured under the pretext of steeping peas in it to preserve them from mice, I take advantage of your excellent journal to mention that if the peas, before sowing, are soaked in a solution of common Barbadoes aloes, it is a perfect protection against vermin, and obviates all danger.—E. J.

SHADE FOR PLANTS.—Having noticed several remarks and suggestions in your work respecting the method of shading plants, I send you a rough sketch of a shade I constructed last year, suitable either for pot or border plants. It is made with two little hoops (one about as large again as the other) and



four pieces of lath; the laths are tacked inside the hoops, which are placed distant from one another about two-thirds the length of the requisite height of the shade, one end of each lath being set flush with the upper rim of the smaller hoop. Various modes of covering the skeleton suggest themselves, and a long-headed philosopher's night-cap would, if made waterproof, serve admirably to draw over it; but in practice we have recourse to a closely-fitting waterproof calico vestment, which shifts off and on, and is made to draw together at the top with a piece of tape. If the shade is used for a plant in a pot, this dress or covering can be turned and pinned up a short distance at the bottom; but if for use in the open border, then it may be let down to a short dis-

* The popular writer referred to is, we believe, long since dead.—ED. C. G.

tance of the ground, and in either case a small aperture may be left at the top, or not, according as it is drawn together—loosely or tightly. Another method of covering can be adopted: the space between the two hoops may be covered either with well-pasted paper (to be afterwards oiled with linseed oil), or with water-proofed calico. In using the shade for plants growing in the border, the legs of it should be pressed into the soil an inch or so, to keep it firm in its place, and deeper if the last described mode of covering be adopted. The shade from which the drawing is made has one hoop four inches, and the other nine inches in diameter; there are eleven inches between the hoops, and the legs of the shade measure five inches. The size of the hoops, and their relative diametrical proportions, will of course depend upon the height and width the shade is to be made. Many modifications of this plan are readily suggested to serve the occasion, for after all it will be seen that it is but a first cousin once removed to the old newspaper cottage hand-light.—W. H. G.

SHIREHAMPTON COTTAGE'S SHOW.—On Monday, the 6th of August, the Shirehampton Cottage Horticultural Society held their first show in the National School-room of the village, kindly granted to their use by the Rev. — Sayce, under whose more immediate patronage the society is principally conducted, and who, on this pleasing occasion, most liberally entertained on his lawn to a sumptuous luncheon upwards of sixty of the principal gentry in the neighbourhood. The approach to the rooms was tastefully decorated with arches of flowers and evergreens, flags were streaming in all directions from the tops of the surrounding houses, and the whole scene much enlivened with the strains of a full brass band. The contributors to the exhibition were principally labourers and occupiers of allotment land, kindly granted by P. W. S. Miles, Esq., M.P., and the specimens exhibited of roots and vegetables were of the most perfect description, and clearly proved they were cultivated by parties who took the deepest interest in kitchen gardening. The potatoes especially were of various kinds and enormous size, without the slightest indication of the disease, and it was a most pleasing sight, at the termination of the proceedings, to witness the successful candidates returning to their village homes with the different prizes, which were most judiciously given in gardening and culinary implements.—THOS. PERKIN, *Westbury, near Bristol.*

TO KILL SLUGS SPEEDILY.—You stated, a few papers since, "you had repeated applications" relative to destroying slugs. With submission, allow me to suggest to you and my fellow subscribers of THE COTTAGE GARDENER a plan of my own. I take about one quart of water, in any vessel, it matters not what, so that it will hold twice the quantity to allow for what is put in, then add a handful of common salt, and dissolve it well. I find the evening the best time for searching for the slugs, and I do so with a candle. I have merely to pick them off and throw them into the solution, and leave them there till the next morning; there is no fear of their ever getting out. Worms are served the same.

SOOT AND SALT: ONIONS.—I used, as you recommended, soot and salt as a manure for many of my crops, and obtained satisfactory results. My early crop of carrots (always an uncertain one) was excellent. I have dug as many as fifty-nine potatoes under one set (of Ash-leaf). Of my later crops, planted at the same time, one bed manured with soot, and another with lime, the former are by far

the best. I do not think you have yet laid much stress on a crop which, although it remains a long time on the ground, is still a paying one, and would be so to any one selling vegetables. I mean large winter onions. I always grow the Tripoli, which do very well with me, by attending to the following rules:—Let the bed be highly manured, sow tolerably thickly in drills, 12 or 14 inches apart, the first week in August; thin and transplant to one foot apart about April; stir the ground between, occasionally, during the spring, and a very heavy crop will be gathered in July, when onions are very scarce. Should they run to seed, nip off the blossom directly it appears. I have grown them this dry year nearly fourteen inches in circumference, weighing one pound. I have grown them larger—one pound six ounces.—H. W. LIVETT, *Wells, Somerset.*

POT POURRI.—In answer to the request of one of our correspondents, we have received the two following recipes for making this fragrant mixture. The first is from a chemist, and the second from an Essex lady. "Powdered orris root, cloves, cassia, nutmegs, gum benzoin, storax, for a good-sized jar filled with dried rose and lavender petals, say $\frac{1}{2}$ oz. of each; a few drops of otto of roses is an improvement." Second recipe—"Cassia 1 oz., $\frac{3}{4}$ oz. of pimento, 2 oz. of orris root, 3 oz. of sandal-wood, $\frac{1}{2}$ oz. of orange-peel, 1 oz. of benzoin, 5 grains of musk: these are to be all finely powdered; of essence of bergamot 30 drops, ditto of lemon, ditto lavender, and mix with the powder; 2 oz. of rose leaves dried (which ought to be the young leaves in the bud). Fill the jar with dried rose leaves, jasmine, verbenas, violets, and any fragrant dried flowers; add small lemons and oranges stuck with cloves, and dried in a cool oven. Bay salt must be powdered and scattered between the layers as the pot is filled."

TO CORRESPONDENTS.

PLAN OF GARDEN (G. W. P.).—We find it quite impossible to advise, with any advantage to our correspondents, on the arrangement of their gardens. It includes too many considerations, none of which are ever finished. We must content ourselves with answering your special questions.

ASPARAGUS BEANS (Ibid.).—Mr. Barnes's plan of growing asparagus in rows four feet apart is not a wasteful occupation of ground, because rows of other vegetables can be very advantageously grown between them. The soil here is always very rich, and even when the stems of the asparagus are grown up, if they are supported by spare pea-sticks or other means, as they ought to be, they will beneficially shade the intermediate crop of lettuces, spinach, broccoli, or cauliflower. You may move your asparagus plants next April, though they will be four or five years old. Take up each plant very carefully, forking out the roots down to their very ends without breaking them. A square bed is the very worst form you can adopt, as it compels the gatherer to tread upon it, which ought scrupulously to be avoided. We should prefer two long rows two feet apart, and the plants at the same distance in the rows. You cannot have fine asparagus if they are crowded.

TREE OR CANARA ONION (H. T. H.).—Offsets of this may be planted in September or October, but the best time for planting is March or April. Your large potato onions which have burst, in consequence of exposure to rain after the long continuance of drought, cannot be depended upon for keeping to plant next year. It is impossible from a flattened bruised *Jack-in-the-bush* flower to tell its name. There are dozens of the same colour.

HIMALAYAN PUMPKIN SEED (Rev. J. S. L.).—We will attend to your request.

WROX DRIVE ROAD (O. S.).—Corrosive sublimate will not destroy the weeds in your neglected road, nor is there any mode of keeping them down except by constantly burning them out, and sowing the surface with salt so thickly that it appears white.

ANEROID BAROMETER (A Subscriber).—Can any of our readers, from actual observation, state whether this instrument can be depended upon?

ASPARAGUS BED MAKING (J. A. Clericus).—The best time for doing this is April, just after the plants have begun to shoot. For making a *sen-le-bed* the best time is March, if rooted slips are to be employed for planting it.

COMPOST OF TURF, &c. (J. R. Nottingham).—A ton of gas lime to five tons of your earthy heap will improve it. The mixture should be turned three or four times, and will be ready for use in two or three months.

early in the season, but any that continue to produce these false blooms through the autumn must be discarded, as no remedy that we know of is at all likely to prevent it.

BLACK PRINCE STRAWBERRY (R. F.).—We have not yet tried to force this, but have no doubt of its being excellent for the purpose.

FOOD FOR PIGS (W. M. K.).—On your three-eighths of an acre of good ground, "the most nutritious and economical food you could grow" is swedes, mangold, and potatoes.

HEATING A SMALL GREENHOUSE (A New Subscriber).—You will find very full particulars in our first volume. See also No. 45, p. 238, and No. 46, p. 259. *Fuchsia wuermeri* may be obtained for 16d of any florist.

STRAWBERRIES FOR FORCING (R. M. Coates).—You will have seen full directions by Mr. Fish, at p. 268.

STRAWBERRY BED DRESSING (H. H.).—Unless your plants are too luxuriant, the best method of cultivating them is to cut off the runners as soon as they appear. You will find Mr. Errington's directions for autumn dressing the beds at p. 273 of our first volume.

IRON FILINGS (W. S., Camden Town).—We are not aware of these being applied successfully to any other flower but the hydrangea for the purpose of changing its colour.

DRAW ON WINDOW (Q. Capar Angus).—This is no proof of frost, but only shows that the cold outside the window was sufficient so to cool it as to cause the vapour on the air within to be condensed upon it.

POTATO HARM TURNED BLACK (E. A. M.).—This is no proof of the disease having affected the tubers, but where it occurs let the crop be harvested at once, and stored in alternate layers with earth. We shall be obliged by your report.

NAME OF INSECT (Φ).—The coppery-coloured and green insect you found upon your young dahlias is the *Capsus danius*, and not at all injurious to them.

WET LOW LAND (A Worcestershire Man).—We shall receive information, enabling us to answer your letter, next week.

TAYLOR'S AMATEURS' BEE-HIVE (Rev. S. Ogilvie, and A Reader, Pinatone).—You will find a drawing, &c., of this at p. 306 of our first volume. Fuller particulars are in a little volume just published, entitled "Taylor's Bee-keeper's Manual." We must not give the address you ask for.

OVER LIMING (J. Edwards).—The reason for our recommending you to expose the soil over-limed as much as possible to the air, was that the lime might thereby be converted to chalk, by absorbing ear-bonic acid gas from the atmosphere. When this is done completely, then you may put on manure if required, but if before it would set free the ammonia of the manure. *Charred turf* is an excellent manure for roses, especially if the soil is tenacious. *Worsted*, used in banding, may be left on without injury until the spring, if sufficiently loosened.

LIST OF ROSES (An Amateur Subscriber).—If you will refer to our monthly indices you will find lists of the best for every purpose you can require. You will be well served by any of the large rose growers.

SHALOTS (H. Benton).—You may plant these in October and November, or in March. Autumn-planting produces the finest bulbs, and is to be preferred if your soil is light: only stick the root-ends of the offsets just within the soil. They are never raised from seed. We are pleased and grateful for your letter.

NAMES OF PLANTS (W. M. H., Corfe Castle).—Your plant has caused us no small research. It is not known to be a British plant, being either *Sisyrinchium Bermudianum*, a native of the W. Indies, or *S. anceps*, a native of N. America. Will you oblige us by stating exactly where you found it? whether it has been long known at Corfe Castle? (T. M. W.).—*Angelica sylvestris*, common in water places. (Lancasteriensis).—Your fern is the Rhomboid-leaved Maidenhair, *Adiantum trapeziforme*.

CALENDAR FOR SEPTEMBER.

GREENHOUSE.

AIR, give very freely to plants returned into house. **CAMELLIAS**, bud. **EARTH**, give fresh. **FORCING BELLS**, in general, pot plants sooner than for the open ground. **GERANIUMS** and **MYRTLES** planted in borders, return into pots, b.; cuttings, plant, b. **GLASS**, Figs, &c., repair, before the plants are moved in. **HYACINTHS** to flower by Christmas, should be potted before the middle of the month. **ORANGES** and **LEMONS**, remove into house, e.; thin fruit. **PLANTS** IN OPEN BORDERS prepare for removal by cutting the roots proportionately. **POTS**, let them be thoroughly cleaned, and the surface soil renewed before the plants are introduced into their winter quarters. **PRUNE** and dress as the plants are removed. **SEEDLINGS** and other young plants, if well rooted, transplant, b. **SUCCULENTS**, remove into house, b. **SECKERS**, lay out, cuttings, &c., may be planted. **TENDER** plants, generally may be put into house. **WATER** is not required so freely, but as the season is beginning.

Tuberous-rooted Tropaeolus beginning to vegetate, report forthwith; give very moderate waterings.

FLOWER GARDEN.

ACONITE (Winter), plant, e. **ANEMONES**, plant, e.; sow, b. **ANISALS** (Hardy), sow, b. **ARICULAS** not shifted in August now remove; water and shade; prepare awning to protect, in autumn and winter; sow, b. **BELAROS-ROOTS**, plant for early blooming, e.; sow, b. **CARNATION** layers remove, b. **CHRYSANTHEMUMS**, plant cuttings, &c., b. **DALIAS**, number and make list of whilst in perfection; describing their colour, height, &c. **DRESS** borders assiduously. **EDGING**, trim plant. **EVERGREENS**, plant, e.; make layers. **FIBROUS-ROOTED** perennials, propagate by slips, parting roots, &c. **FORK** over vacant compartments. **GRASS**, mow and roll; sow, b. **GRAVEL**, weed and roll. **GUERNSEY LILIES**, pot. **HEARTS-**

EASE, plant cuttings; trim old. **HEDGES**, clip, e.; it is the best time! **HYDRANGEAS**, plant and shelter, e. **MIGNONETTE**, sow in pots, to shelter in frames. **PRIMINGS** of pinks, &c., plant out for blooming. **PLANTING** generally, commence. **POLYANTHUSES**, plant, e. **RUNGELSES**, plant, best, e.; sow, b. **DOUBLE ROCKETS**, divide and transplant. **SEEDLINGS**, plant out. **SEEDS**, gather as ripe. **TRANSPLANT** perennials, e. **TUBEROUS-ROOTED** plants, transplant. **TURP**, lay. **WATER** Annuals and other plants every day in dry weather.

ORCHARD.

LOAMY COMPOSTS prepare for planting fruit trees. Commence and continue **GATHERING** fruits as they ripen. **GRAFTS**, graft or cover from wasps, whether on walls or in houses. **OF SUPERFLUOUS** suckers on trained trees make a general removal, or shorten them where space. **NETS**, apply to fruit trees to secure from birds. **NEW FRUIT PLANTATIONS**, make preparations for as soon as leisure occurs; planting may commence, e., with some fruits, provided the wood is ripened. **STRAWBERRIES**, remove in moist weather; straw-berry beds, dress from waste runners, b. **STORES** of fruit for stocks, save. **VINES**, remove or stop all useless spray. **WALL-TREES** in general, look over once more. **WASTES**, cuttrap by hanging hollies; wasps' nests still destroy. **RASPBERRIES**, cut away the old bearing wood and train suckers. **ALPINE STRAWBERRIES**, still remove weak runners from. R. Errington.

PLANT STOVE AND FORCING DEPARTMENT.

AIR, admit freely during the day but more sparingly at night; day temperature, with sun, from 65° to 85°; night ditto, 55° to 66°. **BARK BEDS**, turn and renew, but beware of too much heat, as, instead of excitement, plants should be gradually hardened and ripened; an exception may be made in those plants fresh potted, as the beds may be encouraged to fill their pots with roots. **CLAYS** from all decaying leaves, insects, mossy surface, and dress with fresh suitable compost. **EARLY ACIMENES** and **GLOXINIAS**, dry up preparatory to being placed out of sight in their winter quarters. **ORCHIDS**, shift and divide very sparingly, the re-arranging and shifting of their buds is more to be attended to. **PROPAGATION** of any stove plants, if to be done at all, should be finished in the beginning of the month. **SHIFTING**, finish. **SUCCULENTS**, place under glass. **TENDER PLANTS**, remove from the greenhouse. **WATER**, proportion supply to the weather and the demands of your plants; shower at all times the dripping system; those growing and showing flower-buds will still require a good supply. **SHADING** will now scarcely be necessary, unless with things newly potted. **PINES**, finish shifting, beware of too much bottom heat; though you shut up early in an afternoon, give still a little air in the night. **PEACH-ROOTS**, spare no attention to obtain the wood healthy and well-ripened; give plenty of air to those now ripening their fruit. **VINERIES**: look after the grapes in early houses; ripen the wood; and in late houses thin the bunches more that you intend to hang during part of the winter. **FIGS**, **PEACHES**, and all in pots for early forcing, shift, and should have the wood well-ripened, and then removed to the coldest, shadiest place you can command. **MELONS** and **CUCUMBERS** in frames must be hanked up with fermenting material; stir the surface of the soil, but give scarcely any water after this period; a slight syringe early in the afternoon after a hot day will be useful. Put off seedlings and cuttings of **CUCUMBERS** for winter: for this purpose none excels the *Sisa House* or *Kenyon*. Finish potting **STRAWBERRIES** for forcing. R. Fish.

KITCHEN GARDEN.

ANGELICA, sow. **ARCTICOTHE** perhaps finish gathering. **ARTICHOKE**, break down. **ASPARAGUS**, plant for forcing; beds, weed, e. **BALM**, plant. **BEANS**, earth up, &c., e. **BRET** (Red), may be taken up as wanted, e. **BORAGE**, sow; thin advancing crops. **BORECOLE**, plant, b. **BROCOLI**, plant, b. **BURNET**, plant. **CANEBARS**, sow, b.; plant, earth up advancing; (Red), are ready for picking. **CARDOUS**, earth up. **CARROTS**, advancing, thin. **CALIFLOWERS**, prick out; draw earth to advancing. **CELERY**, earth up; plant. **CHERVIL**, sow. **COLEWORTS**, plant out. **CORIANDE**, sow. **CORN SALAD**, sow. **CRESS** (American), sow, b.; (Water), plant. **CUCUMBERS**, attend to sow, b.; ridge out, b. **DILL**, sow, plant. **ENDING-UP**, attend to. **ENDIVE**, plant, attend to, blanch, e. **FENNEL**, plant. **FINOCUO**, earth up. **HERBERY** requires dressing, b. **HOING**, attend to. **HYSSOP**, plant. **JERUSALEM ARTICHOKE**, take up as wanted, e. **KIDNEY BEANS**, earth up advancing, b. **LEUKS**, plant, b.; thin, e. **LETTUCE**, plant, e. **LYONS**, plant, e. **MARROW**, take up those of full growth, a few every week. **MELONS**, attend to. **MINT**, plant. **MUSHBROOMS**, make; Spawd, collect. **NASTURTIUM-GERIES**, gather as they become fit. **ONIONS**, sow, b., for transplanting in spring; attend to those advancing; gather for storing; (Potato), take up as wanted. **ORANGET**, sow. **ORANSEY**, cut down. **PEAS**, hoe, &c. **PENNYROYAL**, plant. **POT MARJORAM**, plant. **RAIOHES**, sow, b. **RHEBARB**, sow. **SAGE**, plant. **SAVOY**, plant. **SAVOYS**, plant. **SEEDS**, gather as they ripen. **SHALL SALADING**, sow. **SOREL**, plant. **SPINACH**, sow, b. **TANSY**, plant. **TARROW**, plant. **TURNE**, plant. **TURPINS**, sow, b.; hoe advancing. **TURPIN-CARAGE**, plant, b.

Celery plants remaining in the seed-bed may be turned to account by being inserted in a pot of well-manured light soil, each plant being moved with as little as possible disturbance to the roots, and inserted so deeply that none but the tops the leaves appear above the surface. They will yield the greatest spring crop. The keeping properties of *Onions* for store, and now drying, are more injured by exposure to a heavy shower of rain than many would anticipate.

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WEEKLY CALENDAR.

M	D	W	SEPTEMBER 6—12, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bet. Sun.	Day of Year.
6	Th		Gossamer floats.	Autumn Dandelion.	22 a. 5	34 a. 6	8 31	19	1 47	249
7	F		Enurehus. Botan. Soc. Meeting.	Golden Starwort.	24	32	9 5	20	2 7	250
8	S		Nativity B.V.M. Red-under-wing moth seen.	Amelhus.	25	30	9 42	21	2 27	251
9	SUN		14 S. APT. TEIN. Dog-rose casts its leaves.	Canadian Goldenrod.	27	28	10 26	22	2 48	252
10	M		Great Titmouse sings again.	Autumnal Crocus.	29	25	11 18	23	3 9	253
11	Tu		Scotch Fir leaves fall.	Variegated Meadow Saffron.	30	23	morn.	24	3 29	254
12	W		House-flies swarm in windows.	Peltate Passion-flower	32	21	0 18	25	3 50	255

ENURECHUS, or EVORTIUS, was the bishop of Orleans at the close of the fourth century. It is quite impossible to assign a reason for retaining his name in our almanacs.

NATIVITY OF THE BLESSED VIRGIN MARY.—This festival has been celebrated by the Church of Rome ever since its institution by Pope Servius in the year 695.

PHENOMENA OF THE SEASON.—It is quite true that during many weeks of autumn—which season is considered to begin on the 1st of this month—we have dull wet weather, chilly, and softening the change of temperature down to that of harsher winter. Yet,

“If Britain hath not the serene decline
Which makes the southern autumn’s day appear
As if ’twould to a second spring resign
The season, rather than to winter draw,
Of in-door comforts still she hath a mole.”

And though our father-land hath not so much of the sun-light hours which gild in autumn the vineyards of the south, yet it has those green pastures which are so green, even in their autumn garb, as to be unequalled elsewhere, and those autumn tints upon her woodlands that are so lovely as well to invest the period with the character of being “the painter’s months.” In the western world this season is characterized as “the fall of the year,” and true it is that the leaf’s descent to mingle with the soil again is a striking feature of the time;

others have characterized September as “the month of the fading leaf,” and so truly enough it is. But these are mournful notes of description, whereas we would rather sound those of pleasure associated with autumn, and call its days “the year’s days of leaf-fading.” And how varied is that tinting!—the rich brown mingled with yellow upon the oak, the bright yellow upon the hazel and the lime, the red upon the quicken and the sumach, the red and yellow of the cherry, the tawny of the plane tree, the dull brown of the sycamore, the pale yellow of the maple, the bright lemon of the ash, the orange of the elm, and the bright yellow of the hornbeam, all mingled with lingering hues of varied green, form such bright, contrasted, and harmonious breaths of colour as at no other season, and in no other clime, is spread over the woodland landscape. And what is the philosophy of all this? But a few weeks since these same leaves all wore the vivid verdant livery of the greenwood clan, why then now so changed? The explanation is short and easy. Green is the leaf’s natural colour so long as the mysterious vital power of the tree preserves them from the decomposing agents of the air, the warmth and the moisture which are encompassing them, but when the year’s vegetable processes have been completed that preservative vital power declines; those leaves are no longer able to resist the pressure from without, and those yellow, red, and light brown tints, now rendering the foliage of our plants so beautiful, arise from the absorption of an excess of oxygen. When the reduced temperature of the season deprives a leaf of the power to elaborate the sap, and, indeed, stops the circulation to it of that fluid, the absorbent powers of the organ are reversed, and instead of carbonic acid it inhales oxygen. The effect is speedily perceptible. Gallie acid forms, and this, modified by the differing saline constituents of different leaves, changes the hue of their green colouring matter, called chlorophyllite or chromulite, into various tints of yellow, red, and brown. This is the general effect of acids acting upon vegetable greens, and that it is the cause of the autumnal change of colour in leaves is proved by the fact that if a green leaf be dipped into an acid it assumes the same hue, and if a fading leaf be dipped into an alkaline solution its former green colour is restored—the alkali evidently neutralising the acid that had wrought the unnatural change.

SEPT.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
6	Fine.	Fine.	Fine.	Fine.	Cloudy.	Stormy.	Fine.	Fine.
Highest & lowest temp.	61°—37°	73°—46°	81°—56°	76°—57°	63°—39°	82°—50°	69°—31°	68°—43°
7	Shower.	Stormy.	Fine.	Fine.	Fine.	Fine.	Cloudy.	Fine.
	62°—46°	73°—56°	83°—53°	77°—55°	69°—40°	83°—58°	67°—44°	64°—55°
8	Cloudy.	Rain.	Fine.	Stormy.	Fine.	Fine.	Shower.	Fine.
	70°—51°	62°—51°	78°—62°	79°—55°	71°—37°	74°—52°	66°—39°	66°—49°
9	Cloudy.	Cloudy.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.
	68°—50°	66°—53°	79°—55°	66°—54°	78°—40°	80°—54°	71°—43°	67°—54°
10	Fine.	Shower.	Stormy.	Cloudy.	Cloudy.	Fine.	Fine.	Fine.
	74°—55°	66°—51°	74°—66°	69°—40°	70°—53°	77°—60°	75°—43°	69°—43°
11	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.
	73°—51°	68°—53°	78°—44°	61°—54°	61°—54°	74°—59°	72°—47°	69°—36°
12	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.
	84°—60°	66°—45°	75°—61°	70°—61°	70°—45°	77°—50°	69°—58°	58°—31°

INSECTS.—The Frillitary butterflies are among the most common and most beautiful of this class of English insects. They are mostly found near woods and bushy commons, but as the caterpillars of one of them which is found in this month are occasionally devourers of our garden violets, it may now be noticed appropriately. This is the Pearl-bordered Frillitary, *Melitæa Euphrasie* of some entomologists, and the *Papilio* and *Argynnis Euphrasie* of others. The wings are tawny-red, spotted and lined with black, and about two inches across when fully opened; they have a row of silvery or pearly spots round the edge. The caterpillar is black and white, with two rows of orange spots on its back. The first brood of this butterfly appears in May, and the second in September, being in the latter season more yellow than in the spring.



WHERE can liquid manure be most advantageously employed? admits but of one reply. Beneath the surface and close to the roots of the plants it is intended to benefit. If it is applied upon the surface a much larger quantity must be employed than is available, or necessary, before it can be made to soak down to the vicinity of the roots which are desired to feed upon it. That is a waste; but, in addition, by being poured upon the surface of the soil, the heat of this and of the sun, aided by the winds, speedily drive off a large portion of the manure’s most valuable constituents. This is indicated by the smell, and as

Mr. Chadwick observes in his valuable essay on “Sewer Manure,” from which we quoted last week: “All offensive smells from the decomposition of animal and vegetable matter indicate the loss of fertilizing matter, the loss of money, and bad husbandry.” But we need not depend upon the testimony of our noses only, but only pour a little of the ammoniacal liquor of the gas-works upon the soil during a hot day, and hold over it a piece of paper dipt previously into muriatic acid—the fumes which will be rendered visible are the ammonia escaping and being lost in the air. It is quite true that the

fumes arising from the sewage water, or liquid manure formed from animal dung, are not thus detectable, but they are escaping in a degree proportionate to the strength of the manure, and all such escape is "loss of money and had husbandry."

"But how can you apply it but to the surface?" We will tell you what we have been doing, and then you may judge for yourself. Between two rows of cabbage plants we have sunk a row of garden-pots—a pot between four plants—as represented in this diagram; the round dots being the pots, and the black

.	.	.	the result may be we cannot tell, for the experiment has not yet been long enough conducted, but we do know that the liquid manure poured into those pots gets down at once to the roots where
o	o	o	
.	.	.	
.	.	.	
o	o	o	
.	.	.	

it is required, soaking away to them through the holes in the bottom of the pots, and much less manure is required than where it is poured upon the surface, and there is much less evaporation. To the roots of celery plants it may be conveyed in a similar mode by having a draining pipe set up on end at intervals of 18 inches, close by the side of the row of plants, and baving these pipes earthed up as the earthing up of the plants proceeds. We usually grow celery in double rows, the rows a foot apart, and here a single row of pipes may be put in between the rows of plants, and supply both.

We owe the suggestion of underground application to Mr. Chadwick's Essay, who says:—

"The observation of some casual examples of the increased vegetation marking strongly the course of house-drains which run close to the surface of lawns suggested the inquiry whether irrigation might not be conducted in covered instead of open channels of distribution.

"Such casual examples of subterranean irrigation on a small scale appeared to me to be demonstrative of the fact (shown experimentally by Sir Humphrey Davy, when he directed the neck of a retort under the soil, and discharged gas into the earth, which displayed afterwards an increased amount of fertility) that plants are supported by manure in combination with moisture in a gaseous state. This was also shown by the increased fertility of the vegetation of turf coverings over manure tanks, where the root must apparently derive their whole nourishment from the moist or gaseous emanations."

How grateful to plants is this underground mode of applying manure is testified by the following facts:

"When wooden pipes were in use for the conveyance of water under ground for the supply of towns, before iron pipes were introduced, one cause of obstruction in the wooden pipes was the roots of trees getting into them. Mr. Mylne, the engineer of the New River Company, stated to me, that formerly if their wooden pipes were carried within thirty yards of trees, they were never safe from having the pipes

in time stopped up by the roots. The roots 'found' the joints, and insinuated through them, and then spread out in "fox-tails" of fibrous matter, two or three feet long, which have in time filled the pipes and seriously checked the flow of the water. Similar intrusions have been frequently found in earthen drains and water-pipes; but it has been reported to me by a good observer that roots have not, under similar circumstances, entered upon water-pipes of iron or lead. If it should appear that the roots are repelled from entrance by the rust or injurious properties of the metals, that would seem to be an important fact as to the selective powers of the roots.

"I have, however, been informed of instances where iron pipes, for the conveyance of warm water under ground, have been curiously surrounded by the root of the vine, which would appear to have sought the stimulus of the warmth.

"On taking down the walls of Kensington gardens, which were very thick, it was found that the roots had forced their way through them, to get into a ditch on the opposite side. I have been informed also of instances where roots have forced their way through the walls of houses into house-drains; and one instance has been mentioned to me where the roots, having grown, have in time actually lifted up and split the outer walls of the house.

"It is astonishing the depth that the roots even of the smaller vegetables will descend after the water: a deep drain outside the garden-wall at Welbeck was entirely stopped by the roots of some horseradish plants at the depth of seven feet in the ground. At Thoresby Park, Lord Manvers's, a drain fourteen feet deep was entirely stopped by the roots of gorse growing at a distance of six feet from the drain. At Saucethorpe, an estate of Lord Manvers, in Lincolnshire, a drain nine feet deep was filled up by the roots of an elm tree which was growing upwards of fifty yards from the drain; but under these peculiar circumstances, the elm tree grew at the end of a sunk fence, the wall of which was formed of turf. The root of the elm got between the turf wall and the solid bank, and worked its way along till it got into the drain, which it soon filled up. The roots of all trees will stop drains, but especially of soft wooded-trees, such as willow, alder, poplar, &c. Ash trees, too, are very dangerous neighbours to deep drains. In one case the roots of grass stopped a drain two feet deep in the parish of Mansfield Woodhouse; the drain had been carried across a field of old turf to convey water for cattle from a higher level. The explanation of this disposition of the roots both of vegetables and trees to strike deeper than ordinary in pursuit of drains appear to be this:—in digging the drains, the sides are cut down straight, and the ground left like walls on each side, while over the drain the earth is all moved; between the solid and the moved soil for a long time something like a fissure or crevice remains. When the roots in their progress through the solid land reach this fissure, they pass down it, and so follow its course into the drains."

Our space warns us to conclude, but we shall resume the subject at the first possible opportunity.

THE FRUIT-GARDEN.

THE FIG.—As we have observed repeatedly before, rampant growth is the principal hindrance to a fruitful habit in the fig. This rampant character will be found the greatest in the northern parts of the king-

dom, or rather in those counties which possess a greater amount of atmospheric moisture, as related to temperature, than their neighbours. There can be little doubt that the leaf of the fig possesses vast absorbing powers, and hence the astonishment of many persons, who have not thoroughly considered the subject, at finding their figs too gross in what they had considered poor soil. Their vital powers, too, are immense; we once planted some old thrushes which had lain at the faggot heap through many weeks of a hard winter, when very many of the figs growing against walls were killed. Now, these figs grew well, and, indeed, are still thriving too fast by half, on a wall out of doors. We advise one more critical examination of the fig immediately; for where they grow coarse, and have been neglected for a few weeks, they will be found too full of spray of a flimsy and immature character, which proves a serious impediment to the ripening of both wood and fruit. In selecting those to remain, be sure to save the very shortest-jointed shoots; everything depends on a pertinacious adherence to this maxim, which is of equal importance in the case of the fig as the vine. It must be remembered, nevertheless, that not too many even of these must be retained; not he who retains the most good-looking shoots obtains the most figs. We have, indeed, seen cases in which a huge old tree against a south wall will produce a multitude of short-jointed shoots, of such a stumpy and fruitful character that six or seven joints would be comprised within the length of about four inches, which, indeed, was the average length of the young shoots. When such is the case, a considerable number may be retained, for the leaves of many figs when in so highly a fruitful state are not so large as those on gross and barren plants, and, of course, do not shade each other so much. We consider that as many shoots may be tied down as will completely clothe the old stems from bottom to top. We speak now of tying down on the main stems, for we hold this the best plan; those, however, who choose to nail them between, can do so, for the difference as to the fig is scarcely worth contending about, the amount and character of the young shoots reserved being of far more importance. As to number of shoots, that depends, in part, on the distance at which the main shoots are placed; if these are, as we have before advised, a foot apart at least, why then there is every chance of laying in a considerable quantity. We would advise the operator to begin at the top of the tree, and commence selecting shoots according to the character heretofore laid down, and when the first is tied down, and its point pinched off—of which more shortly—then another may be selected close to the very spot where the pinching of the former took place, and so on downwards, stripping all those away entirely which are considered superfluous. All small, weak, and immature looking spray, of later growth, must be rubbed off. This severe course of operation will naturally astonish those who are taking in the mere alphabet of horticulture; for such a severe course of discipline would go far towards ruining the constitution of some of our more delicate fruit; the fig, however, has such extraordinary vital powers, that its total destruction is not easily accomplished.

Having said thus far about training, selection, &c., we come now to another important part of fig culture, viz., "stopping." Such fig trees as we have described, as possessing a host of short joints in a very narrow compass, and which are fruitful without interference, need not this process: these, however, are the exception—we have the rule to deal with. It is well, there-

fore, to stop all those of a doubtful character at the end of August, or the very beginning of September, merely pinching off or squeezing flat the terminal growing point. This will induce the fruit for the ensuing year to commence forming, so as to receive a decisive character. This stopping, however, is a matter of some nicety, and the period of performing it must be determined both by the kind and its condition or habit. A too early stopping with some figs, which are not very difficult to fruit, would cause them to develop the fruit for the ensuing year too early; for if they become as large even as a black currant berry, they will be almost sure to perish with severe weather in the ensuing winter. Stopping, therefore, is a matter of some nicety, and had better be performed over late than early. These things accomplished, little more remains to be done to the figs except gathering the ripening fruit; their ripeness is readily known by their pulpiness, which may be ascertained in a moment by the slightest pressure imaginable.

STORING APPLES.—Having adverted to the gathering of apples, and the general principles of management consequent on housing them, we may now be permitted to remark on the general modes of storing them. Every one has not the convenience of an extensive and well-planned fruit-room, and not every fruit-room will hold the stores which propitious seasons will yield. Some other mode, therefore, must be adopted besides putting a single layer on shelves, which mode is scarcely to be expected with any other than first-rate dessert fruit: although right in principle, it is not of universal application, and expedients here become positive virtues.

Seeing, then, that such fruit as apples—and even pears—must be stored in bodies like potatoes, what is the best plan to preserve them? Exclusion of air is a well-known principle, but then there is the fermentation to fight against. It would appear that, before pitting apples or putting them away in boxes, tubs, &c., some sweating should be previously allowed; for since the apple, and, perhaps, most other fruits, perspire more during the first three weeks after housing than at any subsequent period, it becomes an important consideration whether or not a considerable amount of perspiratory matter cannot be freely voided, previously to the final storing, with ultimate benefit to the fruit. We certainly have never "pitted" them as people pit potatoes, yet we have known it done within our ken, and the only impression left on our mind is that apples will keep *fresh in appearance* much longer than if permitted to perspire freely, and, by consequence, shrivel on shelves or floors.

We do think that the old plan of placing a layer or two on a floor in some corner of an outhouse, then a thin layer of well-dried straw to prevent contact, then another layer, and so on, is about as good a plan for ordinary purposes as can be devised. To be sure, if kiln-dried straw can be obtained so much the better; fresh straw being both apt to impart flavour and to engender or foster damp.

By such a plan layers of carefully-gathered apples will keep a long time, at least those of keeping properties; taking care to put a layer of the straw or even fern, or such material, if *thoroughly dry*, between every layer of apples, not more than two or three deep. The room in which they are placed should receive as much ventilation at times as will serve to dispel the moisture arising from them, and which, otherwise, would remain partially suspended in the room, to the deterioration or rather corruption of the walls, floor, ceilings, and even the fruit, and the straw

by which it is surrounded. The time for a little ventilation may be easily determined by the sensation produced on entering a close room of the kind; if the air is oppressive to the lungs, depend upon it that a deal of extraneous matter in a gaseous form pervades the atmosphere. The ventilation, however, need not be permitted many hours where the object is to keep fruit as long as possible. It should, moreover, not be made use of when much atmospheric moisture and a dull state of air prevails out of doors; better to wait awhile than to ventilate badly: to exchange foul air for any damp air is no great gain; better far to wait a day or two.

Some persons pack their exhibition or long-keeping fruit in jars, and even clean garden pots or other similar vessels have been called into requisition for the same purpose. Indeed, by such means we have seen Ribstone Pippins, Nonpareils, &c. &c., exhibited as fresh in appearance in May as in December; but we never could hear that they were high flavoured. So, then, it seems long-keeping properties, enhanced by artificial means, are in the main obtained at the expense of high flavour. Like the razors, they will look well, but not cut. However, we would not willingly cast a damper on energies directed in this way; fruit may, undoubtedly, be retarded a certain time without sacrifice of flavour. We hope soon to be able to say something on this head—a heading which concerns thousands.

R. ERRINGTON.

THE FLOWER-GARDEN.

THE GENUS DIANTHUS.—This is a family of flowers that are, for the most part, very beautiful—rich in colours, of fine forms, and of exquisite fragrance: the name itself is an elegant one—*dios*, divine, *anthos*, flower—divine flower. In this family is the much admired flower the pink, in praise of which we might launch out freely, but it is needless. We are sure all our readers are fully sensible of the beauty and fragrance of that justly highly-valued flower; even the worst variety in the florist's eye is in any other considered beautiful. We, therefore, submit to the florist that when he discards seedlings as worthless it would be an act of kindness to bestow them upon his cottage neighbours, to ornament their small flower plots; indeed, not only pinks but any other seedlings of florists' flowers that do not come up to that standard of perfection the raiser judges to be necessary might be very wisely and charitably given to the cottager, to plant in his flower border.

There are several beautiful species in this genus. We select a few of the best. Some of them are Alpine plants, and are excellent for ornamenting rock-work; others are little more than biennials, and require to be raised either from seeds or cuttings annually. They all require a light soil, consisting of half sandy peat, half light loam, with a small portion of vegetable mould well decomposed. Such as are grown in pots should be well drained, and plunged when potted either in sand or coal-ashes in an open situation. They are propagated in various ways: some by seeds, as, for instance, the pink, sweet-william, and carnation; whilst others are increased by root division, and all of them by cuttings or layers.

Dianthus aggregatus flore pleno (Double-clustered pink), 1 foot, red. This is a fine variety, with immense clusters of bright red flowers, suitable either for bedding or for growing in clusters in the borders, Division and cuttings.

D. alpestris (Alpine pink), a beautiful species, with white fringed flowers produced abundantly, 9 inches high; suitable for rockwork. Seeds, division, and cuttings.

D. arbusculus (Little tree pink), also pretty, with rose-coloured flowers; beds and borders. Increase by seeds. 1½ foot.

D. deltoides (Maiden pink), rose-coloured, 6 inches high; rock-work or pots. Division or seeds.

D. Fischeri (Fischer's pink), pale pink, 4 inches; a lovely little species. Borders or pots.

D. Garnierianus (Garner's pink), 1½ foot, rose and white; very pretty. Division and seeds. Suitable for borders.

D. giganteus (Giant pink), rose, 3 feet. A truly magnificent species, suitable for a large bed or for pots. Increased by cuttings.

D. lusitanicus (Portugal pink), 2½ feet, crimson; a handsome species, suitable for borders. Division and cuttings.

D. punius (Dwarf pink), crimson, 4 inches; very neat; suitable for pots. Cuttings.

D. superbus (Superb pink), white, 6 inches; a fine species, suitable for pots, to be plunged in the borders during the time they are in flower. Seeds and cuttings.

D. hortensis (Garden pink); *D. caryophyllus* (Carnation); *D. barbatus* (Sweet-william). The three last are so well known that it is needless to remark more about them here.

D. Hendersonianus (Henderson's pink), a splendid hybrid, with large flowers of the richest crimson; 1 foot. By cuttings or pipings.

There is also the *D. sinensis*, or Indian pink. These are great ornaments to the flower-garden, especially if care is taken in collecting the seeds from the best kinds. The only safe way to do this is to mark the best-shaped, finest-coloured, and most double kinds, when in flower, and save seeds only from these, throwing all the others away. By following this up for three or four years you will have a bed of Indian pinks inferior to none in point of beauty. The best ought to be taken up in autumn and put in pots, three or four in a pot. Protect them in a frame, or under hand-glasses, through the winter, giving but little water, and planting them out in the spring in a bed. We have dwelt rather long upon this beautiful species, because, having seen some beds of it in flower that had been carefully selected as we have described, we can bear testimony confidently to the rich tints and fine flowers so produced.

HOLLYHOCKS.—We have just seen a somewhat novel mode of growing these beautiful flowers, which we think worthy of being known and imitated. In a nursery, not far from the ancient Royal Palace of Holyrood, in the fine ancient city of Edinburgh, we saw a fine collection of hollyhocks nailed up against a wall. That wall was built with whitish stone, and the green leaves, and richly-coloured flowers of every hue, excepting blue (a colour, we believe, that has never been seen on these plants), completely covered the wall, and the effect was strikingly beautiful. The walls of many a humble cottage might be so ornamented. Now being the time to transplant seedling hollyhocks, our friends of that class would do well to plant some against the bare walls of either their dwelling or any other building or wall they may have. They would last in such situations very much longer than in the open border, provided there was no drip from the house or other building upon them. Make the soil rich with good rotten dung, for the hollyhock is a coarse feeder, and loves a deep, rich soil. Hollyhocks in the borders, now in flower, will require close attention to keep them securely tied to the stakes. Examine the ties, and if you observe them compressing the stems, cut them off and retie them with fresh matting.

Propagate your finest kinds by slips taken off from the bottom of the plant; do this very carefully so as not to injure the old stems. Trim off the largest leaves, and put them in under a handglass in a shady place, using plenty of sand in the soil. Mark such as you may think the finest to save seed from with a piece of matting or worsted. It is best to do this early, so that there will be no mistake when the seed is fit for gathering.

FLORISTS' FLOWERS.

TRIPL.—It is a good time now to begin to prepare

the bed or beds for these truly noble flowers. Should the situation of the bed be a permanent one, and the soil has been used for several years, it will be necessary to entirely renew it. Make the edge of the bed firm by treading and beating with the back of a bright spade; then stretch a line the entire length, and commencing at one end thrust the spade in, sloping inwards, to its full depth; draw it out again without disturbing the soil, and repeat the operation till the entire body of soil, inside the bed, is cut off from that surrounding it. Commence at one end and take out the soil, wheeling it away to some other part of the garden, laying it on as a fertilizer. For although it may have lost its nourishing qualities for the tulip, it is by no means poor in respect to other plants. For common vegetables, or even for strawberries, it will be found a good application; take it out to the depth of 16 inches at least, leaving the bottom smooth and level, but by no means hard or compressed by being trodden upon. Examine the drains, and see them set all right; then lay in a covering of very rotten cow-dung, two or three inches thick, and upon this place your main body of soil or compost, which has been preparing in the compost yard for twelve months previously. This compost should consist of the following proportions: seven parts good light loam from a pasture field, the top spit only; one part rotten dung, two years old; and as much sand as will make the whole open and work kindly. Lay this compost in your bed of sufficient height to allow for settling; and *never let it settle below the general level*, but keep it higher by two or three inches. The bed, however, should not be rounded up in the middle, but kept perfectly even to receive the benefit of the rains. We shall return to this subject next week. T. APLEY.

GREENHOUSE AND WINDOW GARDENING.

CAMPANULA PYRAMIDALIS, or the bell-flower, with tall pyramid-like flowering stems.—This good old plant, which everybody knows, or ought to know, is now going out of bloom, and this is the proper time to make a succession stock of plants from it, to flower this time two years.

PROPAGATION, SOIL, &c.—About the beginning of September is also a good time to sow seeds of it. The seedling plants will not flower till this time three years, at least very few of them will, but nearly a season is gained by sowing the seeds in the autumn. The seeds are very small, and if sown now must be sprinkled very thinly over the surface of light sandy soil in five or six-inch pots. Indeed, all seeds sown in the autumn in pots ought to be sown thinner than when sown in the spring, as the weather is more dull and damp, and the growing season chiefly over, so that the seedlings, if they come up very thickly, are in great danger either of damping or bringing up each other so weakly that they have no strength to pass over a hard or long winter. It has been remarked that seedling plants of this tall campanula grow much taller than those increased in the common way by pieces of the roots and by side slips. From five to eight feet is the usual height for this class, but seedlings grow some feet higher. Suppose, then, we raise a pot or two of seedlings this autumn; they would come up in a warm window, and perhaps that is the very best place to set them in. A cold close pit is the next best, but as soon as the seedlings

are up they must not be kept close, but have air all day long. As, if left to themselves to grow wild, the plant is quite hardy in England, the same treatment as that of the winter mignonette will carry our seedlings safe over the winter, and in the spring all the air that the season will allow of should be given to them, and by the end of April they ought to be in a fit condition to plant out in the open garden. I have often heard and read that dung is inimical to this plant, but the truth is there is no plant in the catalogue which likes dung better, or is more improved by a judicious use of it; therefore, when your seedlings are fit to plant out, choose a piece of light dry soil in an open part of the garden, and trench it 16 or 20 inches deep, and you may mix one-third its own bulk of rotten dung with it, if you have it to spare; or if you were to open a trench 18 inches deep and two or three yards long, and fill it up to the top as they fill celery trenches, that is, with half muck and half good soil from a compost heap, and sprinkle two inches of the common soil on the top, you will have one of the best beds for the out-door culture of the campanula (whether raised as seedlings or in the usual way) that can be made. If you have plenty of seedlings you may put them in four or five inches apart, as probably the slugs and grubs may want a taste of them, and cold easterly winds in May will not add to their number or size; but as soon as they begin to spread out their leaves, thin them out by degrees: by the end of July you may find that a foot apart is not too much for them, and in making your bed or trench you may calculate the space with reference to this final distance. They do best in a single row, and to stand south and north if possible. In hot weather soap-suds or other weak liquid manure must be given them, for although with their succulent thick roots they can stand a smart drought, it is not good policy ever to let them get dry or anything like it. Keep the surface soil as sedulously stirred about them as Mr. Barnes would for his best kitchen crop, and by the end of the first season they will have made such progress as late spring-sown plants would make in two seasons' growth, and, with the rich compost and still richer waterings, they are so succulent that it would be very dangerous to trust them to the frost without protection. The best way to protect them is to scrape off an inch or two of the surface soil: this will carry away young slugs, and grubs and the eggs of insects, many of which while grubs are very fond of this campanula. This should be done on a dry day in October, and if the weather is likely to hold up, the surface may be left uncovered for three or four days. If any of the leaves still remain cut them off; do not pull them, and the crowns of the plants will get well dried and hardened by the exposure. Then take very dry coal ashes, and place it three inches thick, to the distance of a foot on each side of the plants, and if the crowns are still higher than the coal ashes, make little cones of ashes over them, and only just deep enough to cover them. They may remain that way, perhaps, for a month or six weeks without any frost, and it would be a pity to smother them up at first, as if twenty degrees of frost were expected the following night. We often commit great mistakes in first covering many plants on the approach of winter by laying it on too thickly. After a first coat of coal ashes, as above, is given, we should rest satisfied till actual frost sets in, and then add more as the case may require. It is the crowns of the campanulas which require protection, their roots are hardy enough, and these crowns may be killed by over kindness in the shape of a deep cover-

ing. At the end of the second spring, when the coal ashes are removed, the same thickness of fresh soil should be laid over the roots, to be kept stirred and watered as through the first season, and in October of the second season go through the same process as before. The following spring will then be the third spring of their existence, and most of them may be expected to flower. For that purpose, some people would take them up last October, and keep them in pots in a cold frame, or under the stage of a greenhouse, but they are much safer where they are: some of their roots might die off, and often do so, and otherwise get injured, when they are potted in the autumn. I see no feasible excuse for the plan at all. What would Mr. Barnes or Mr. Errington say to me, if I were to recommend rhubarb, sea kale, and asparagus, to be taken up and potted five months before they were wanted for forcing? Why, they would say I was *daft*; that the roots of such plants could not be removed and potted without some injury from breakage, that such injuries could not be repaired by the energy of the plants until they were in full growth again, and that in the meantime rottenness, damps, and a long dreary winter, would be sure to leave their bad consequences entailed on plants so treated. It would be just so with our campanula potted in October, and yet half the gardening people will either not believe such things or else act as if they took no thought on the subject. I know a gardener who was more successful with these plants than any of his neighbours, and he never potted his plants from the nursing row; and he *would* grow them in rows till late in March, and some seasons not till April, his criterion for seedling plants to flower being their beginning to push up from the centre of the crown as soon as vegetation began in the spring, and he would pot none unless they first showed that sign; and I recollect very well having helped him to pot some after pushing up half a yard of the flower-stem in May, and I do not think that they were any the worse for it; but the surest way is to pot them as soon in the spring as you perceive them moving up in the centre.

To make plants from the roots of such as are now done flowering, shake the soil away from the roots, and choose the strongest of the side roots for cuttings. If they are forked roots all the better, as they will make more fibres and not run so deep as the smooth straight ones; cut them two inches above the forked part, and take three inches of the fangs, or forked parts, themselves; then your cuttings are five inches long. If they appear milky on the cut ends, let them dry for a few hours before you put them in; then take a good sized pot, if nine inches over it will do, drain it well and place the root cuttings all round it, leaving one inch of each above the soil, which must be very sandy, and if it is damp only, you need not water them for three or four days after, and by that time the cut ends will be thoroughly dried or healed over, and then there will be no danger from damp or watering. Place the pot in a spent cucumber bed, or in a warm window, and the roots will soon sprout, and for the rest of the winter and next spring treat them as the seedlings, only about the end of March they should be shaken out of the cutting pot, and each have a little 3-inch pot for itself, which it will fill before the end of April, when you are to plant them out, as I said about the seedlings, only not so thick this time, as you have strong bottoms; say ten inches or a foot between each. It is best to give them plenty of room, and if you grow a score of them, they will not take up much space.

Now, all this is the true cottage mode of rearing and flowering these stately bell flowers, and by far the easiest way; but gardeners often grow them in pots all along without ever planting them in a trench, and still have them as high as you please; but they must be carefully watered and watched every day, and week, and month; and, after all, you may get up some sunny day and find their leaves curled up, owing to some hopeful youth having tried his hands at experiments with your guano cask the evening before, and so dosed them too much; whereas, if they were in the open ground, the dose could hardly affect them injuriously. Side slips from the crown of the plant will also make roots, so that they are very easily increased. Here we flower two or three dozens of them every season: we find them very useful, and we plant out a lot in a mixed bed, where they reach up to seven feet, and look gay enough from early in July to the middle of September.

VARIETIES AND HYBRIDIZING.—There is a kind with white flowers which is not so showy as the blue variety, and different shades of blue are always to be had from a batch of seedlings, and, as this shows a tendency to sport, I am almost sure if a little pains were taken to cross them new and superior varieties might be got, particularly if such beautiful species as *grandis*, the great flowered; *nobilis*, the noble flowered; and the old *grandiflora*, which Mr. Fortune sent from China, and to which another name has been given, were grown after the manner of our present subject, and all crossed each with the other under a high state of cultivation. Indeed, I cannot bring another family to mind now that has not yet been tried that way where so rich a harvest may reasonably be expected as among these stately Bellworts, as Dr. Lindley very properly calls the campanulas. Now, if you have time and inclination to follow out this suggestion, set about it this month; procure the plants from a respectable dealer; they may be multiplied and treated as the old one or nearly so, and, if they will interbreed at all, depend on it you will have something handsome from their union, and there are no plants less troublesome to cross, as the whole family marry clandestinely, therefore the pollen of one cannot affect any of the rest, unless by the hand of man, so that a whole bed of the different sorts may be growing together without the least danger of mixing naturally like many other plants. If Linnæus had been aware that some families of plants were naturally cryptogamic (*kryptos*, concealed, and *gamos*, marriage), he would have given a different name to his twenty-fourth class. The pollen of the Bellworts is ripe and its office concluded in the dark while the flower is yet in the bud. Their style occupies the middle of each flower as usual, and is divided at the top into three, four, or five parts, according to the species; but these divisions stand up close together, and are as closely embraced by the anthers until the pollen is ripe. After impregnation the divisions of the stigma lengthen out and curve backwards, and each curve is plastered with the pollen on the under-side. Then, and not till then, does the flower open, so that in crossing them you will have to split the flower-buds to cut out the natural pollen before it is ripe, and also take a more forward bud to get the strange pollen from. The divisions of the stigma being close together, the place to put the pollen on is their outside, near the top, and this part is curiously set with a whole network of teeth or hairs, after the manner of the teeth on the drum of a musical box, so that on the least touch of the anthers these teeth will hold the pollen at each stroke, and you may lay

it all over them so close that if it were possible for other pollen to reach the stigma it could get no access to the proper parts.

The word *campanula* means little bells, being the diminutive of *campanum*, an old obsolete Latin name for a bell. But what is the meaning of diminutive itself? asked a friend the other day. Why, a "short cut," to be sure, was the reply, which we all use more or less. Jack, Johnny, Fred, Ned, Will, Bill, Ben, and Bob, are all diminutives or short cuts for well known names; and, to turn from little bells to great ones, we have campanology as the name of that noisy game called "ringing the bells or chimes," which is as familiar and grateful to English ears as the screechings of the bagpipes are to the highlander.

D. BEATON.

HOTHOUSE DEPARTMENT.

THUNBERGIA.—As a sequel to the paper of last week we shall now allude shortly to this beautiful family of climbers, which, when well grown, are very ornamental alike to the stove and the conservatory during summer and autumn, and which require very little more attention than a balsam to manage, if a few points of no difficulty are attended to. One of these points is the giving them a slight degree of shade from bright sunshine after they have passed their young state. The genus received its name in honour of C. P. Thunberg, a celebrated traveller and botanist. It belongs to the fourteenth class and second order of the Linnæan system, and the natural order Acanthaceæ. All the species are natives of warm latitudes, coming from the East Indies, Madagascar, Sierra Leone, and Trinidad. They are all tubular and monopetalous in their blossom or corolla, but in its appearance there is considerable difference in the various species; the *coccinea* being inclined to be *ringent*, or somewhat like the snapdragon family; the *grandiflora* is foxglove-shaped, or resembling closely a large flower of the largest gloxinia; while the others, such as *chrysops* and *alata*, and its allied species and varieties, are salver-shaped, that is, having a long slender tube, while the upper part, or what is termed the limb of the corolla, is expanded into a flat surface—like a round dish or salver—of five segments, such as we lately saw to be the case in the tender species of the vinea, and which may easily be seen in the flower of a phlox. The beauty of the vinea chiefly consisted in the contrast exhibited between the segments of the corolla and the different coloured ring that surrounded the pinhole-opening that terminated the tube, but in these salver-shaped Thunbergias the chief beauty consists in the contrast between the colour of the expanded segments and the throat of the tube itself, which is generally from two-eighths to three-eighths of an inch in diameter; the width across the segments being from two to two and a half inches. I may also mention that the width of the tube at its termination is owing to a swelling out that gives it somewhat of a funnel-shaped appearance. There are a few points more in a botanical point of view to which we shall merely advert. Before the expansion of the flower you will perceive that it is shut up between two green leaves that act as a sheath. At first sight you would imagine that that greenish covering was the calyx, or outer protection of the flower; but it is not so. If you turn them down you will see that the base of the tube is surrounded by a number of short thread-like substances in a

whorl-like manner, each of these thready substances being a sepal or division of the true calyx. The two leaves that enclosed the flowers are termed *bracts*—a term given by botanists to those leaves from the axils of which flowers are produced, and to those leaves produced upon the *peduncle* or footstalk of the flower, as in the present case. Such leaves are always different in size, and frequently in outline and colour, from the general leaves of the plant. Whatever be the size and colour of those appendages that intervene between the true leaves of the plant and the calyx of the flower, they are termed bracts. As flowers are our object, we shall not advert to the horny-seeds farther than to say they are worth examining; but before parting with the flower we would wish you to get inside of the tube, and mark not only its own beauty but the beauty of what it encloses. There are the singular and pretty fringed anthers of the stamens; in some, as in the *fragrans*, there is the little open bowl, terminating as a stigma the slender style of the pistil; in *alata* and its congeners the terminating bowl is not a fourth of the size it is in *fragrans*, but the style (nearly an inch in length, and very slender) is bent at rather better than an eighth of an inch from its point, so as to lean over the anthers of the stamens. At this bent part, and leaning in a similar manner, is another bowl-like protuberance, three times the size of the terminating one, and resembling the half of a beautiful bivalved shell, fit, by its elegance, for a mermaid, or one of Neptune's ancient naiads. The extreme delicacy and fineness of the finish of these various parts will well repay your inspection. It is a striking fact, but no less true, that the more minutely we examine the works of man the more do roughness and incongruities appear; while the more we examine the works of the Almighty the more perfection and beauty we behold—roughness and unevenness never being detected, even by the finest microscopes, without an end and reason existing for them. It was not without a purpose that the most splendid embodiment of wisdom that earth will ever witness enforced the proposition, conveying in itself a command and a privilege, "Consider the lilies and flowers of the field;" for there is small hope of that man or woman progressing in that which is kindly, humane, or generously sympathetic, who can examine the structure of a flower, evidencing as it does not merely the power but the beneficence and goodness of the Deity, and yet can remain unimpressed amid the lessons it so forcibly teaches. What purpose, then, does this shell-like protuberance answer? I think that it collects and transmits the fertilizing pollen as well as the little bowl at the termination of the pistil. And what are your reasons? I have cut off the point of the pistil, and left this shell-like protuberance, before the pollen boxes of the anthers had opened, and fertile seeds were produced. I have removed the shell-like bowl, and left the small one at the point, and a similar result took place. But now I am, nevertheless, in a fix, for in removing both of these apparent stigmas, in one case at least, by a liberal dusting of pollen over the severed style, I obtained seeds. A stray grain or tube of pollen may have effected fecundation before I took the common means to prevent it; but, as it was, the event rather puzzled me. In many cases there is scarcely such a thing as a style to the pistil, but the stigma is close to the germen. Is it impossible for fecundation to take place when the pistil has no stigma? Older and wiser heads than mine must determine. Plants in many cases are wonderfully accommodating, suiting

themselves to circumstances. Those who have leisure, and who can command a good microscope, may not only amuse themselves in such a field but give us a lesson in turn, and thus shew that they are neither too wise to learn nor too proud to teach.

BEST SPECIES AND VARIETIES.—*Thunbergia Coccinea*—flower scarlet; hangs in bunches, smaller, but somewhat similar in manner to the scarlet clustered passion-flower. Flowers most freely on one-year old wood; will stand well in the conservatory in the autumn and beginning of winter. Propagated by cuttings.

T. grandiflora—large flowered; form already adverted to; colour light blue, very beautiful when densely dotted with bloom. Should seldom be removed from a stove temperature. Propagated by cuttings and divisions of its tuberous-like roots.

T. chrysops—flower blue and violet; very beautiful; have flowered it only once; gave up its growth, most unwillingly, after being fairly beaten. Would go some distance to see a good specimen. Grows most freely, and is easily propagated by cuttings. Would soon monopolize a house for itself.

T. fragrans—flower white; never detected much of the fragrant about it. Flowers and seeds freely. Propagated by seeds and cuttings. Will stand in the conservatory in the autumn, but it likes heat, and will stand more direct sun than the following more beautiful species.

T. alata, or winged—segments of the corolla, buff yellow; throat of the tube, dark purple, approaching black.

T. alata alba, or *leucantha*—segments of the corolla, satiny white; throat of the tube much the same as the above.

T. aurantiaca—orange-coloured; segments of the corolla, bright orange; throat of the tube similar to the others.

Although all these of the *alata* group are generally set down as species, I consider them as little else than varieties of the same type, but upon this we cannot now enter. All these are freely propagated by seed or cuttings, and answer best when, by either means, they are treated like annuals, and grown afresh every year. They are thus brought within the reach of those possessing a cucumber bed, and a small greenhouse; as, by sowing in the former, say in the beginning of March, and potting and growing for some time, they may then be removed at first to the warmest end of the greenhouse, so that no sudden check is experienced. Where a heat of from 45° to 50° can be maintained during winter, it is best to put in cuttings now under a bellglass; pot them off in the end of the month; preserve carefully during winter; pot and repot in spring, until fit to ornament any place you choose under glass, for, though I have grown them in the open air, it requires a fine sheltered place to render them long sightable. The preference I give to cuttings is owing to their flowering earlier, more freely, and not growing so rampant as plants from seeds. Those who prefer fine foliage to masses of bloom will sow seeds. To secure from them smaller foliage and more bloom, more peat and a good proportion of lime rubbish should be incorporated in the soil. For common purposes, equal portions of turfy loam and peat, with a little silver sand, will grow them admirably, using manure water at the first sign of weakness.

GENERAL MANAGEMENT.—There are two essentials, without which you will never have them long worth looking at, grow them where you will, but miserable leaf-spotted, red-spider-inhabited specimens, will be

your reward for all your labour. The first essential is *watering* not merely at the roots, which must not be neglected, but *over the foliage* with a fine syringe, once or twice every day; the second is *shade from the noon-day sun*, without which the leaves will lose their rich green. After starting them in spring, they thrive admirably under the shade of vines. When removed to the greenhouse or conservatory, let the same principle be attended to. Even in a cold glass case in which I flower them in summer, I find they must not stand near the back wall, which being of a white colour, the reflection or heat and light from it is too powerful for them. They will flower freely in any place under glass, from June to October, if these matters are attended to. They may be trained to trellises, stakes, branches, or young trees, as recommended for the *Toronia*. If you disapprove of making cuttings, you may cut down the old plants, shake most of the soil from the roots, repot in small pots, and place in bottom heat, and thus get the plants to break afresh before winter, when they may be kept over the same as young plants raised from cuttings. If you sow the seed in spring, soak it for a few hours in water of 100° temperature, and plunge the seed-pan into a good bottom heat. R. FISK.

THE KITCHEN-GARDEN.

CELERY.—Those who have now any ground to spare should make another planting of this vegetable, so that a good succession may be kept up until the spring. Finish earthing up the earliest planted celery now for bleaching, and keep the successional plantings free from suckers previously to the earth being applied. Keep the surface of the ground well stirred, and give liberal soakings of good manure-water to all growing plants. Celery seed should now be collected, and those who may wish to save their own for next year should now select the best and most perfect plants, and put them out for that purpose in any spare airy corner. If the slightest symptoms of the celery fly appear at this season, water immediately with a mixture of soap and chimney soot.

CARROTS.—If these are now sown on a dry, sheltered border, they will be found very useful, early in the spring, to succeed the winter stored roots. The Early Horn is the best for this purpose.

LETTUCES AND SALADS.—Lettuce plants should be early pricked out, and the ground often surface-stirred around them. If any symptoms of canker appear about the plants in the seed bed, this operation should be performed with a stick, or a small hoe, and a little dry dust shaken occasionally over them. In close weather, too, the plants are very subject to mildew, which a dusting of flowers of sulphur will effectually cure. The last sowing of *chervil* should now be made, as well as of *curled* or *Normandy cress*. Attend, also, to the planting of *endive* in succession, and either tie up the early planted to bleach, or place slate or thin boards over it for that purpose.

KIDNEY BEANS.—Any one who has a pit or frame to spare may prolong the *Kidney bean* season by now planting a crop on a gentle bottom heat.

ONIONS AND LEEKS.—*Store onions* which are now ripe should be drawn, well dried, and harvested, and in the evenings, which are now getting long, they should be bunched, or roped to a whisp of straight straw, so that they may be hung up in a dry loft for

the winter use. *Leeks* may still be planted, and may also be placed much nearer together.

WINTER SPINACH.—Attend to this vegetable by now hoeing and thinning it out, not forgetting, also, to assist its growth by keeping the soil well stirred about it.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 42.)

My garden now begins to talk very loudly of approaching winter. The decaying stalks of the departing flowers, the leaves that insensibly collect together under the shrubs and in the corners of the flower-beds, and a certain bright colouring on the tips of the boughs, particularly those of the beech and oak, tell of the retiring sap and the rapid withering of the rich summer foliage. If it were not for the knowledge that we are so soon to lose the beautiful clothing of the trees, autumn would be by far the loveliest season of the year. The bright greens of spring do not rival the rich crimson, and brown, and yellow tints of the fading leaf, which seem to grow richer and brighter as they take their last leave of us; but there is not the same feeling of hopefulness in us at this particular season, which, perhaps, increases the beauty and pleasantness of the earlier days, and checks our perfect enjoyment of the picturesque when we are about to lose it all. It is a very wholesome warning to our hearts that nothing belonging to earth can last for ever; and that, short-lived as are the beautiful decorations of the soil, even they are not more quickly doomed to destruction than is the hand that cherishes and the eye that delights in them. The word of God declares that "we all fade as a leaf." What a sermon, then—what a library of sermons—is even one single tree! and, yet, though they are multiplied around us, though the whirling leaves are often driven against the window, and we start at the sudden tap, we heed not the message they bring, and lay not these warnings to our heart.

Bulbous roots that have done flowering may now be taken up, and the offsets separated from the parent plant. They should be planted again immediately, but the old roots may be kept out of the ground for a month if requisite. I have sometimes thought it might be useful to plant any old roots of the common white lily, that are not wanted for the borders, in pots by themselves, for the sake of their healing virtues; as these roots, boiled in milk, were formerly considered valuable as applications for wounds. In country villages, where medical advice is often distant and difficult to obtain, a knowledge of "simples" would be extremely useful, and with very little expense might be employed in many cases. I have no doubt the poultice of lily roots would be quite as efficacious, at least, as the "brown soap and sugar," which is the invariable salve of the poor when suffering from wounds or sores.

In rainy weather, polyanthus may be parted. They should not be allowed to remain in large bunches, but kept in small, neat roots, as the flowers will then be stronger and handsomer. I have always remarked that the large plants become weak and disfigured in the bloom. Seeds both of polyanthus and auriculas may be sown now. It is best to sow them in large flower-pots, as they may then be sheltered in winter more easily, and are less liable to be eaten by slugs. It is very interesting to watch for new varieties, as the young seedlings

come into flower the following year; and, by raising them thus, we are sure of a succession of healthy young plants. I confess I have never adopted this plan myself, but I have been pleased with it when some of my friends have done so; and if my garden was less cold, and exposed to winds, and the drip of trees, I should have done so too. It is almost essential that a lady's garden should possess one sheltered spot, at least; the warmth and protection of a wall or a high screening hedge, under which the tenderer objects of her interest may be safely placed, where they may receive light, and air, and rain, without being splashed or blown about by the rougher winds. I feel the full value of what the poor call a "succour" situation, because I do not possess it; and I recommend every lady to endeavour to form a shelter if she can against the north and east. I am trying to persuade a belt of laurels to thicken and form a hedge, that I may have one warm strip of ground; but although my soil is highly suitable to evergreens, and they grow fast and fine, yet it takes time to become so thick and close as to prevent the searching, blighting east wind from passing through them.

The tall, bright sunflower is now giving a rich glow to the shrubbery border. It is too large and glaring for the flower-bed, but in the background or among shrubs it is gay and glowing. It is useful also to those who keep poultry, as its seeds are much liked by fowls. The settlers in Canada store them for this purpose; and the wife of the cottage gardener in England might thus effect a great saving in her domestic management if she raised these plants in sufficient quantity to enable her to keep a small stock of fowls. Food, when purchased, is far too expensive for the generality of cottagers, but some, whose gardens are tolerably large, might set apart one bed for the growth of sunflowers for their poultry: they would assist considerably, if not entirely maintain them. The sunflower is a native of America. It flourishes richly in Canada, Mexico, and Peru, and it is occasionally found in some parts of Asia and Africa, but America is its favourite home. Its rich golden flowers seem to receive their colour from the golden soil in which they grow. The inhabitants of Peru, when first visited by the Spaniards, worshipped the sun; and those who performed the ceremonies of their idol-service in his temple wore these flowers formed of pure gold on the head and breast, as emblems of their deity. No doubt its name arose from this circumstance, as well as from its being supposed always to turn towards the sun. It brings before us a striking view of the darkness of heathen minds; and yet even these poor ignorant Peruvians reprove many professing Christians! They adored the source of light, and warmth, and beauty, as he soared over their rich and beautiful land, cheering and gladdening every hill and valley, wondering at his splendour, and trusting in his power. We have a yet more glorious sun, the "Sun of Righteousness," arisen "with healing in his wings." Do we look up to Him, with the simple faith of the unenlightened Peruvians? Is His mark on our foreheads and on our hearts? The sunflower, as it stands calmly in the border, asks us a deep and searching question. Let us answer it truly; let us look carefully into this matter, for, perchance, we also worship an idol, and our sun may set never to rise again.

RAISING SEEDLING GOOSEBERRIES.

THE raising of seedling gooseberry trees has, until the last few years, been left in the hands of the working classes of this country. Notwithstanding, great improvement has been made, both in the mode of cul-

ture and in the kinds raised. Indeed, it is a question whether there has been so much improvement in the culture and kinds of any other description of fruit as there has been in the gooseberry during the last 30 or 40 years. I find, on referring to the "Gooseberry Growers' Register," that in 1810 the heaviest grown that year was "Crown Bob," 21 dwts. 17 grains; in 1812 the heaviest was a seedling, 19 dwts. 10 grains; in 1813, "Crown Bob" was again the heaviest, attaining 22 dwts. 21 grains; in 1824, Roaring Lion was the heaviest, 26 dwts. 5 grains; in 1844, London was the heaviest, 35 dwts. 12 grains. Thus we find from 1824 to 1844 there had been an increase of weight of about 141 grains. The above are all red kinds, but not only has the improvement been made in this class, but in the other classes, viz., yellow, green, and white, the improvement has been equal. Much as has already been accomplished in the improvement of this useful and delicious fruit, much more might be done. I am far from thinking that *perfection is attained*; but, on the contrary, my firm conviction is, that if the subject were taken up by gentlemen laying claim to great horticultural skill, who had a little leisure time, and would devote a little of it to the subject, we might reasonably expect still greater proficiency to be made.

I will offer a few remarks on the best means to be employed in raising them, and their management. If I can by this means induce any efficient person to take the subject in hand, I shall be satisfied, and I have not the least doubt but that *he* will be satisfied also. As in all cases where seedlings are to be raised, whether in flowers, fruits, or kitchen vegetables, the greatest care should be exercised in the selection of good kinds to raise the seeds from, this will be the *first chief care*. If this be not attended to we cannot reasonably expect the seedlings to be superior to the kinds already grown. The fruit selected should be of *large size and good flavour*; its colour is of no consequence, for if you select a red one, in all probability you will have amongst those raised from it, red, yellow, green, and white. Sometimes, even, none of the seedlings will favour the kind raised from, whilst sometimes they vary very little. This will, I presume, depend upon how they have been hybridized by the bee, with the kinds growing near them. The next care will be to select *well-formed* fruit to seed from. I think this is of importance, for if the seed be large and well-formed, it will develop itself in the fruit. Having selected fruit with the aforementioned properties, allow them to remain on the tree until they are quite ripe; they may then be plucked and broken, the seeds and pulp put in sand, and then rubbed well together, in order to separate the seed from the pulp. The seed and sand together may then be placed in a well-drained flower-pot, sufficiently large to hold it, placing a little sand over the drainage, then the seed and sand, adding a little sand about an inch on the top. The pot containing the seed must then be placed under a hedge or wall, and remain until February or beginning of March, when it may be sown on a bed composed of sand, leaf-mould and soil. The whole of the sand and the seed in the pot may be mixed together, and sown as equally as possible over the bed, covering the seed a little better than a quarter of an inch deep. The only care during the first year's growth will be to prevent the seedlings from making side shoots until they have made a sufficient length of "bole" or stem, say nine inches. This may be done by taking out the buds at the sides, leaving the top or terminal bud until the bole is of sufficient length. Great care should be taken in the removal of the

buds that the bark be not bruised, for if the bark be bruised it may be of consequence to the tree afterwards. If the weather prove very dry during the spring or summer months, the seedlings may be occasionally watered after sunset. This will be all the care they will require the first year's growth.

In November, December, or January, the seedlings must be taken from the seed bed, care being taken not to break or bruise the roots in taking them up. Whilst they are out of the ground, all the tap roots must be taken off by the pruning scissors, (otherwise, train them horizontally in replanting). If they have made a sufficient length of bole the first year's growth, they may be disbudded from the bottom to within four buds of the top, after taking off the top or terminal bud. The three or four buds left on are intended for branches the following year; care should also be taken that all buds are removed from about the insertion of the root, for if this be not done they may, by producing suckers, prove troublesome, and injurious to the good growth of the plant afterwards. I ought to observe, that some of the seedlings will make greater progress than others; some of them will make a sufficient length of bole and a few branches besides in the first year's growth, and when this is the case the branches may be cut off, leaving three or four buds on each branch; *never leave more than three or four branches on a tree*. Having properly dressed the seedlings, they may be planted in rows at least 18 inches apart, and the same distance from each other, at a depth of three inches in sand, leaf or vegetable mould and soil, making the surface on which they are to be planted quite level, and spreading the roots well out as uniformly as possible round from the bole.

They will require little care during this year, only a little water if the weather be very dry, taking away any coarse shoots that may proceed from the bole; and it will be also necessary to train the shoots with hooks and props, so as to form the top as nearly flat as possible, but, if anything, rather higher at the end of the branches than at the bole. They must be removed in November or December, taking care while they are out of the ground to remove all buds from about the roots as before described, cutting off the superfluous wood that has been made the last year; leaving on such shoots as are well ripened, containing good buds, and are in such a position as may be brought either up or down, so as to form a beautiful plant. The shoots left on must have the ends taken off, leaving five or six buds on each; they must be replanted in the situation in which they are intended to remain until they have shown fruit. I think the best mode of planting out seedlings at three years old, is to plant them in rows at about two feet six inches apart, by the side of a walk, the same distance from the walk as from each other, in any part of the garden. Allow them to remain until they have shown themselves; if they do not show themselves very fine and promising they can remain here for general bearing purposes, but those of them which promise well I advise should be removed the following autumn to the best situation in the garden, in order that they may receive proper care and attention, as directed in *THE COTTAGE GARDENER*, page 303 of vol. I. In order that no ground be lost, onions may be sown amongst them, but not immediately under them, as they will grow without injury to the trees or fruit. I am afraid I have already trespassed too much on your space, but before closing the subject I wish to make a few concluding remarks. In order to secure good seed it is of great importance

that the choice trees, from which you wish to procure seed, should be planted as far apart from the common bearing varieties as possible; if this be not done, your "labour may be in vain," or in a great measure retarded, at least the chances will be against your succeeding in the way you would do by adopting a different mode of procedure. This, I think, has been the reason the working classes have been so successful, for what kinds of trees they have grown have been of the best varieties out; they have had "none but the best;" the consequence has been their ultimate success. Should there be any further information your readers may desire, I shall be happy to afford it, on their sending a line to my address; and should any person be inclined to "try their hand," to such I would say, persevere, for "perseverance is sure to succeed."—JOHN TURNER, *Nurseryman, Neeps-end, Sheffield.*

WIRE-WORMS.—The Rev. E. T. Yates says: "I see in this week's number a remark on soda-ash. I have found it efficacious in driving away wire-worms, if not in destroying the destructive little marauder."

ERICA CAVENDISHII.—Mr. Fairbairn, of the Nurseries, Clapham, near London, writes to us as follows:—"We think it may interest many of your readers; who may have witnessed the magnificent specimen of *Erica Cavendishii* that we have had the pleasure of shewing at the several great metropolitan exhibitions, to be informed that we have plucked 15,945 perfect blossoms from it, and that the plant is now in the most robust health, and promises yet to continue 'Geant des Battailes;' it has certainly gone through its warfare most valiantly."

NOTES FOR CORRESPONDENTS.

CLIMBING ROSES (E. A. M.).—Always keep down suckers of roses by pulling them off as fast as they appear. When climbing roses have filled or covered the spaces allotted for them all their strong shoots must be stopped at every growth; but probably yours are now too long for this, it so, prune one third of their length away, and any aftergrowth this season stop as soon as a few inches are made.

ROSE CUTTINGS (F. R. S.).—Your instructions for growing these are unexceptionable, but not new. Almost all the perpetual roses will grow from cuttings if put in in August, and many of them will do as late as October, such as *La Reine*, *Duchess of Sutherland*, &c., and in some soils do much better on their own roots than on the dog-rose. We prefer all the strong Perpetuals on their own roots, but the dwarf and weak growing ones, budded close to the ground, on some free kind of the China breed. There is an Italian rose now in the nurseries which makes an excellent stock for dwarf perpetuals; it is called *Manetti*, and grows as freely from cuttings as the willow.

SOWING FRAGRANT, BURNING, AND ANNUALS (W. W.).—It is now too late to sow biennials and perennials for flowering next year. The following annuals if sown during the first fortnight of September will flower in April and May, before the geraniums, verbenas, &c., are planted out; sow them in an open space in poor, light soil, and be sure not to dig it, only scratch it with a strong rake, and rake the seeds to cover them; the object being to render the young plants as firm and hardy as possible before winter. If sown on rich, loose soil they would grow so succulent that the first hard frost would kill them. *Silene Pendula*, *Compacta*, and *Regia*: three red catch-flies; they are very showy in May, but weedy at other times. *Virginian Stock*, pink and white sorts, and *Venus' Looking-glass*, blueish; old favourites. *Collinsia Bicolor*, purple and white, and *C. Grandiflora*, deep purple; very showy, rising to 10 or 12 inches. *Nemophylla insignis*, the finest of blue plant we have. *N. Atomaria*, white with black spots. *Clarkia Pulchella*, rose and C. Alba, white. Sow these separate, but mix them together for plant when you put them out in February or March, and the effect will be splendid. *Eucharidium Concinnum Grandiflorum*: this looks just like a red dwarf *Clarkia*, and is one of the very best of annuals at all seasons. *Erysimum Perfoliatum*, deep orange; from 18 to 20 inches high; very showy, and requires to be planted quite thick. This is also a good summer annual. *Platystemon Californicus*, and *Limnanthes Douglasii*, two weedy lemon-coloured low plants, but useful in May. *Calceolus platyglottis*, a yellow flower of the daisy cast; very gay, but weedy. *Leptostemum densiflorum*, and grandiflorum, fine pink blossoms; plant them thick, six to twelve inches. *Gillia trientalis*, light purple; one of the prettiest of our spring annuals. *Eutocia viscidula*, fine blue flower; but the plant is weedy and prefers a damp shady place. *Osyra chrysanthemoides*, weedy; but fine yellow flowers.

Bartonia aurea, splendid yellow flower; but a very weedy plant. Large quantities of these would make any garden gay in May; many of them have no English names, and seedmen know them best by our names. It must be recollected that these annuals are great improvers of the soil.

FUMARIA (GO L'ESPERTE (Hid)).—Your plant which had not flowered at the end of August may yet do so, but certainly next year: ours were then in blossom. Keep it cool.

PROPAGATING CALANDRINA UMBELLATA (Hid).—The very top of the little tufts or branches do best for cuttings, but you are too late now for them. Keep the plant, from frost and propagate next March. What a brilliant little pet it is!

MARKET GARDENING (M. A. Maltstone).—We are not aware of any separate work upon this subject. It is only gardening on a large scale, keeping in view the cultivation only of those things which must with a ready sale.

CLIMBERS FOR A WALL (D. T. H.).—You will find full lists of plants, which will answer your purpose, as well as directions for their culture, at pp. 149 and 154 of our first volume. It is quite impossible for us to give a design for ornamenting your wall. Your other questions shall be answered next week.

STRAWBERRIES OVERBORN WITH BINDWEED (Waltham Abbey).—The best way to exterminate the bindweed, under your circumstances, is to persist in weeding it out; it bleeds much when wounded, and one season's constant weeding will nearly or quite wear it out. You may make a phlogisticant of strawberries now as soon as you can; digging deep, using soil of a rather adhesive character, and introducing some manure.

CROPS FOR A WET HOLLOW (A Worcestershire Man).—If we understand your action aright your pit will always be liable to have half a yard of water in the bottom, pit what soil you may above it. This is not the most eligible site to reclaim: still, such a spot as the Black currant, celery, &c., might be cultivated in it, and, perhaps, raspberries. We think, however, that coarse stones or other imperishable material should be thrown in the bottom, in order to prevent saturation so far as possible. If your old turf is a loan we would by no means burn it; burning it, we conceive, intended to correct material otherwise incorrigible. Char your brushwood, by all means, and spread the ashes; dig the turf in as dressing, or mix and turn it with fermenting materials previous to the spring cropping. We fear burning reduces the materials, if organic, at a vast per centage. Your peats and sterile clays are, however, improved by fire.

PLANTING FRUIT-GARDEN (G. W. P.).—You may, of course, safely leave a few useful trees, as you describe, until the dwarfs come to bearing conditions: this is a judicious course. Eleven feet is quite near enough; we would have given another foot or two, seeing that gooseberries or currants are intended to form undergrowth, and apple-trees should be of the kind termed dwarf standards: that is to say, possessing a clean stem of about two feet, with a head like a punch-bowl or, at least, so formed as readily to take that character in the ensuing year. As to kind it is impossible to advise you unless you inform us whether you desire table or dessert kinds, and in what proportions; also whether on a commercial speculation or merely for home consumption. By all means make stations unless you have a fine loamy soil of two feet on a dry and sound bottom. Your espaliers, if kept within bounds, will not be objectionable. As you will have plenty of apples you may plant such fruits as Orleans, Madame Claude, Violette, and Greengage plums; and Morello, May-duke, and Elton cherries.

HARBEN CHERRY-TREE (Hid).—You should have named the kind. Thin out the shoots in autumn, and try an application of manure six inches thick; over-luxuriance can scarcely be the cause.

CABBAGES NOT HEARTING (T. H. C.).—As your cauliflower-heads well, and you have no complaint to make against your red cabbages, there can be no reason for your common cabbages not hearting except that you do not get a good variety. We cannot say why your pear and apple do not produce fruit without further information. Your heavy soil and Sheffield smoke are against them, but do they blossom well? or in what stage do they fail?

SOWING APPLE PIPS (A Well-wisher).—Sow the largest and plumpest pips from the best apples, but not one to produce a tree like its parent, and like its parent, and like its parent, an apple will produce a seedling differing from the others. The best chance for you to obtain new and excellent varieties is by hybridizing. If we were about to try the experiment for dessert fruit we should select the old Nonpareil for the mother, and the Kerry Pippin and other high-flavoured kinds for the father, and mix the seeds, and plant between the John apple, or Northern Greening, and some other also a good keeper, but with more flavour. The pips of apples that will keep until the spring had better not be sown until March. Dibble them into a light border, burying each an inch deep and six inches apart. They may also be raised in pots. Remove suckers from them if they produce any.

RETARDER PLANTS STILL VIGOROUS (A Subscriber, Lynn).—If they were ours we should not gather from them any more, but allow the leaves to remain on until they die down naturally. You may still give them liquid manure. A gallon from your cow-yard to five gallons of water will be strong enough, and two gallons to each row, if large, twice a week.

HEATING SMALL GREENHOUSE (A Subscriber, Exeter).—A pipe flowing from and returning to the copper in your wash-house adjoining would do for heating your small greenhouse, but we cannot furnish plans. Any whitewash could do it for you.

JESSAMINE (Thanke).—Your young jessamine is growing weak, and you fear to cut it back, thinking it will spoil the look of it, and yet you ask our advice what to do. Without seeing your plant, soil, or situation, we can only advise you to cut it back, this is not an easy task, at least to be certain to meet your case. Try watering with weak liquid manure; syringe your plant night and morning for a fortnight; and then wait patiently for another year's growth, which will no doubt be stronger.

LILIES (A. Y. Z.).—You will find your question answered by Mr. Appleby next week in the weekly essay on "The Flower-Garden."

ROTATION OF CROPS (A Cottage Farmer, Norway).—You have two cows, pigs, and poultry, and you grow no hay! then surely you must buy hay or cut straw. We do think that under such culture you may turn out crops more frequently, but the question is too large to be dealt with in a few lines, and our limits do not allow many. We cannot quite understand what you mean by three crops in two years; pray give us another note, and be a little more explicit. Your essay applies to hundreds.

RASPBERRIES BRANCHING (A. A. Clericus).—You have used rather too much or too powerful manure. Your double-stemmed raspberry canes will do, but we deprecate those which branch many eyes. Top them all in the middle of September; i.e., however, more than two canes. See full directions at p. 55, vol. 1.

RHUBARB (Ibid.).—Cutting the flower-stalks strengthens the future leaves; cutting or pulling the leaves "vice versa." Your plants are "below par" or they would have put forth flower-stalks.

INDIAN PINK (Ibid.).—Your seedlings are flowering now. It is but an annual, or, if you will, an imperfect perennial. Cutting the flowers off, and above all keeping them dry, airy, and free from frost during the ensuing winter, will go far towards giving you a good bloom next year.

FINES AND VINES (Y. M. K.).—You will like to know what variety of grapes we recommend you to grow in a span-roofed house, where you intend to fruit pines.—We think that your general plan might have been amended by adopting what is termed the "Hamiltonian system;" as it is, however, and seeing that you will have grapes over the fruiting pines, is a thing of some little difficulty if excellence is aimed at—we would advise you to plant the Black Hambro' and the true West's St. Peter; we do not, however, see why you should not indulge in a Muscat or two. It is not generally known, perhaps, that the West's St. Peter, the best keeping grape in the kingdom, will both bear and enjoy as much heat as the Muscat.

VECONICA DIOGAS (W. H. Eaton, Secor).—The enclosed, by its succulence and mildewed state, being ulcerated and covered with a minute black fungus, has every symptom of having been kept in an atmosphere too moist, and supplied with too much water. Try keeping it drier and very freely exposed to the light.

RASPBERRY TRAINING (W. K.).—We have tried all modes of growing the raspberry, and find none like that of training them in an espalier rail, like those of which we gave a drawing for sticking peas at p. 271 of vol. 1, omitting the stringing. Your plan of employing posts and ropes approaches to the same plan, and would do equally well; but the posts ought not to be at wider intervals than three yards, or the ropes will hang loose between them.

POTATOES (Ibid.).—Those which have their stems blighted had better be taken up at once, and stored in a dry shed in alternate layers with earth. It is a common complaint that many of this year's tubers, since the occurrence of rain, have thrown out young tubers; the same occurs almost every year. Rish all the small ones off before storing; they have not injured the tubers which produced them, for these were furnished with fresh sap from the plant as long as the stems and leaves were vigorous.

POTATO ON UPRIGHT ONION (Ibid.).—Many of yours rot at the crown.—You have probably grown them large by planting them on very fertile soil; if this be the case, or if your soil be wet, such ulceration is of frequent occurrence. Middle-sized onions, of all sorts, grown on dry, moderately rich soil, so as to be ready for storing by the middle of August, keep better than larger and later ripening sorts.

GREENHOUSE ROOF (Dr. J. Birmingham).—The angle or inclination of this, which you require for wintering plants in, had better, if low, be 30°. You will find Mr. Beaton's excellent suggestions for building one at p. 119 of our first volume. Mr. Fish furnished us, some time since, with the accompanying drawing of a very simple instrument, a quadrant, or quarter of a circle, by which the angle of the roof can be at once determined. Fasten a string with a leaden plummet through a hole in the corner opposite to the arc, or portion of a circle. Divide this arc into 90 equal parts; place the side marked *b* against the roof on the side, and the string will hang opposite to the mark which is the angle of the roof in the drawing.

It marks 45°. If the angle be less, the thermometer can keep your house from falling below 35° at night and during frost, that is all you will require in winter; 40° or 45° will be a good day temperature at that season. You may lower your floor a little to give you height inside.

A ROCKERY (A Constant Reader, Exmouth).—This will look well if judiciously managed. We have just seen one built round, and with an arch over such a circle as yours; the circle is occupied by a water-tight basin, in which are gold fish, and there being a few water-plants in and about it, an aquarium and rockery are combined. You will find a list of hardy aquatic plants at p. 185.

BEES (Rev. T. G. T.).—The small hives are not to be replaced upon the stocks after they are emptied of the honey, but put in a clean dry place for use next spring; and the opening at the top of the straw hive must be closed very securely, and that immediately.

PUFF-BALLS FOR FUMIGATING BEES (John Briggs).—You say that these are scarce in the part of Yorkshire where you reside. You

can procure them through any of the bee-keepers in Covent Garden Market. Mr. Payne informs us that he has heard of the successful employment of chloroform for the same purpose, and promises a report in his next calendar.

STRAWBERRIES ON FEET-TREE BORDERS (Subscriber ad initio).—These are the worst crop you could grow. They are there all the year, root deep, and are a very exhausting crop. No other crops but salad, lettuce, spinach, seedlings-herb of brocoli, &c., should be admitted on such borders on such a plan.

SMALL FRUIT UNDER STANDARD TREES (Ibid.).—We have seen red currants and dwarf filberts tolerably fruitful in gardens shaded by tall apple-trees.

HOLLYHOCK LEAVES DESTROYED (C. N. A., Birkenhead).—Your foe are probably small slugs, for these are very fond of them. By the time you see this, the season for hollyhocks will be passed, and you had better cut down the flower-stems close to the ground. *Nasturtium berries* and *mignonette pods* ought not to be gathered green if intended for seed. Chickens will not do well upon rice alone, but they will thrive upon it mixed with barley or oatmeal. Currant-trees against a wall always shed their leaves early; we have some now (Aug. 29) quite bare. We only received your communication this day.

PHLOXES THREE FEET HIGH (Rusticus).—Baldryann, white; Wheeleriana, purplish-pink; Panicalata, pink and white; Undulata elegans, deep pink; Murrayana, rose with yellow eye; and Celestia, pale blue line.

HARDY HERBACEOUS FLOWERS (Ibid.).—The following are from one to three feet high: Spring Blister Vetch, Early flowering Phlox, Round-headed Ranunculus, for spring flowering; Larger Snapdragon, Columbine, Thyme-leaved, and Lobelia's Larkspur, for summer flowering; Japan Anemone, Round-headed Liatris, Late flowering Evening Primrose, and Lance-leaved Goldenrod, for autumn. These are twelve as asked for, but you will find a much fuller list, with their colours and other particulars, at p. 34 of our first volume.

LACTUCA MANGONIS (G. H. W.).—This must not now be sown, not until after the blossom-buds show themselves next year; neither must you give it to sprout-trees now nor during the winter. It ought not to be given to any plant except during the period of its most vigorous growth.

ENON.—At page 270, line 36 from bottom, read "La reseda de l'Egypte."

CLASSIFICATION OF ROSES (Rev. N. Stephenson).—We so fully agree with you in thinking that this is desirable that we are making arrangements for determining the distinctive marks of each, so as to avoid the confusion in which too many catalogues are at present. To this great good requires judgment, consideration, and much time.

SHREBLAND SCALET GERANIUM (J. T., Manchester).—We should like to oblige you, but such calls have been incessantly made since the article appeared, and the cheapest effort we could now make would be more than what the article would be worth to you in your immediate neighbourhood. Any respectable nurseryman in your locality can supply the plants you want, for, if he does not possess them, he can procure them through a London nurseryman, or if he applies to Mr. Appleby.

SALICORNIA CALIFORNICA (A Leicestershire Subscriber).—This, by following our advice, is in flower in your open border. Let it remain where it is. It is a very good addition to our hardy flowers.

DARLINS (Ibid.).—If you can keep them perfectly dry, and the frost from them, they will be safer in your border, but not otherwise.

VINTAGE SCARLET GERANIUMS (Ibid.).—You may put these all into one large tub, instead of singly in pots, provided you drain well, use rather light soil, and give no more water than will just keep them from drying. You ought also early in October to cut off some of the large leaves, and see what is said to-day about preparing their roots.

LIQUID MANURE TO CHRYSANTHEMUMS (W. H. G.).—The directions are not at all inconsistent. The mode at p. 83 directs liquid manure to be given throughout their growth; the small pots checking the production of roots, rendering the plants dwarf, and inducing the production of blossom buds. The mode at p. 230 directs that liquid manure be not given until the flower buds appear; the plants being grown in large pots, and allowed to attain their full stature. The first is a mode of growing fine dwarf specimens, which Mr. Beaton has been practised; the second is the mode of growing large plants, which he practices himself.

BEES (A Country Curate).—We are glad that we have lured you to bee-keeping. You must leave your bees in the common hive and wait until next season, when you may put a swarm from it into any hive upon the depriving system that you may select. If it throws off a second swarm or cast you may have this also into a depriving hive, and then fangate or stupify the bees in the old stock, and then add them to the cast, as directed at page 284. As you wish to set an example which your poor neighbours may follow you had better adopt Payne's "Improved Cottage Hive"—this being made of straw can be easily copied. Your other question will be answered next week.

NAMES OF PLANTS (East Bedford).—Your plant is a *Corn*, and we think, *C. urbanum*, but we cannot decide without seeing a perfect flower. (*O. H., Cardiff*).—Yours is *Abutilon striatum*. Please to give us more information about your potatoes. When did you plant and take up your first crop? When did you plant your second crop? Let us know the amount of produce per square rod also. (*Bedford*).—Yours is the strong-smelling Goosefoot, *Chenopodium graveolens*.

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WEEKLY CALENDAR.

M D	W D	SEPTEMBER 13-19, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bet. Sun.	Day of Year.
13	Th	Elder-berries ripen.	Saffron Crocus.	33 a. 5	18 a. 6	1 26	26	4 11	256
14	F	Holy Cross.	Passion Flower.	35	16	3 38	27	4 32	257
15	S.	Vapourer moth seen. [low.	Byzantine Meadow Saffron.	37	14	3 53	28	4 53	258
16	Sun.	15 S. AFT. TRIN. Lime leaves yel.	Sea Starwort. [low.	38	12	sets	29	5 14	259
17	M.	Lambert. [finches in flocks.	Narrow-leaved Mal.	40	9	6 n 44	1	5 35	260
18	Tu.	George I. and H. lauded. Gold-	Drooping Starwort.	41	7	7 9	2	5 56	261
19	W.	EMBER WEEK. Dotterel arrives.	Devil's-bit Scabious.	43	5	7 34	3	6 17	262

HOLY CROSS DAY was the anniversary of a festival, instituted about the year 615, to celebrate the recovery by the Emperor Heraclius of what the Roman Catholics believe was a fragment of the cross on which our Saviour suffered. It had been seized by Cosroes, King of Persia, when he plundered Jerusalem. The day was called *Izodousa* day by our Saxon ancestors, rood being their name for the cross; and this will serve as a solution to our readers of the names of some of our churches, and one of their constituent parts—Holy-rood and Rood-loft. The latter was the place in or near the roof where the cross or rood was kept when not required for exhibition to the votaries. It was a rustic custom for all the young villagers to go nutting on this festival; and, as their gambols in the wood were not characterized by the sternest virtue, this proverb preserved by "poor Robin" had some reason to sustain it—

"The devil—as the common people say—
Doth go a nutting on Holy-rood day."

SEPTEMBER 15TH.—A well-known observer of our seasons, Dr. Forster, has recorded, as a result of long experience, that in at least six years out of seven the weather is fine on this day.

LAMBERT, or LANGUEDUT, was bishop of Maestricht; and although giving him no title to a place in an English almanac, yet it is a fact to his undying honour that he was murdered by those who were enraged by his unsparing condemnation of the vices of his countrymen. He was assassinated A.D. 708.

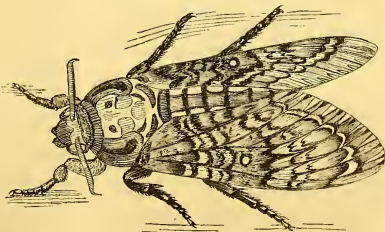
PHENOMENA OF THE SEASON.—A "tap at our window" by a falling leaf reminds us that this falling is the most prominent phenomenon of the season; and if this brief paragraph were not devoted to science rather than poetry, we might make this our theme:—

"Give me—give me the withered leaf
That falls on autumn's bosom dead;
For that ne'er tells of what has been,
But warns me what I soon shall be:
It looks not back on pleasure's scene,
But points unto futurity."

Such, however, is not our fitting text, but rather the unimaginative query—*Why do leaves fall?* The reason seems to be one which influences all the smaller developments of a plant that are only required for a time; so soon as they cease to be useful the plant casts them off. It is the case with the petals, the smaller fibrous roots of deciduous trees, and the outer bark, as well as with the leaves. So soon as a plant has ripened its fruit, and stored up the secretions necessary for the next year's growth (operations effected chiefly by the agency of the leaves), so soon do these begin to fade, and after a short space of time they fall. Their vessels and fibres contracting or shrinking faster than those of the branch from which they spring, the separation takes place at the articulation where the differing rates of contraction meet; the leaves then fall, and the scar upon the branch is found already healed over. This healing is effected by a conversion of the sap, cementing the branches, fibres, and vessels together, from a soft and glutinous to a dry and brittle consistency, so that at last the leaf falls merely either by force of its own weight or before the slightest breath of wind. We believe that the ceasing of the sap to flow to the leaves is the cause of their decline and fall, for if the root action is kept up artificially the leaves do not fall if maintained in a temperature and state of moisture favourable to them. Does the cocoa-nut tree ever shed its leaves? We do not remember to have seen any fall from it during a residence of some years in Bengal. Evergreens do not shed their leaves at the same time as deciduous trees, because a root action, though weakly, is proceeding throughout the winter.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
13 Highest & lowest temp.	Fine. 79°-80°	Fine. 68°-51°	Fine. 72°-47°	Fine. 73°-51°	Cloudy. 71°-58°	Fine. 70°-55°	Rain. 64°-41°	Fine. 64°-37°
14	Fine. 78°-55°	Fine. 72°-53°	Fine. 69°-62°	Fine. 72°-50°	Showery. 71°-39°	Fine. 71°-48°	Showery. 64°-30°	Fine. 64°-37°
15	Fine. 66°-55°	Fine. 74°-45°	Fine. 70°-51°	Cloudy. 67°-61°	Rain. 67°-43°	Fine. 70°-49°	Showery. 65°-51°	Fine. 64°-32°
16	Fine. 71°-41°	Fine. 72°-48°	Fine. 83°-53°	Fine. 73°-61°	Fine. 64°-54°	Fine. 79°-45°	Stormy. 64°-34°	Fine. 66°-34°
17	Fine. 69°-41°	Fine. 74°-51°	Fine. 84°-52°	Showery. 72°-53°	Rain. 64°-55°	Fine. 79°-52°	Rain. 61°-42°	Fine. 71°-39°
18	Fine. 72°-56°	Fine. 62°-48°	Fine. 80°-58°	Cloudy. 62°-37°	Showery. 65°-48°	Fine. 70°-39°	Fine. 58°-30°	Fine. 68°-36°
19	Fine. 74°-64°	Showery. 68°-39°	Fine. 80°-49°	Fine. 65°-42°	Fine. 65°-34°	Fine. 73°-46°	Fine. 60°-18°	Fine. 68°-37°

INSECTS.—The caterpillar of the largest of the British moths is most usually found during September, but this year, at Winchester, we know of six specimens found about the middle of August. These are the caterpillars of the *Death's-head* moth, *Acherontia atropos* of some entomologists, and the *Sphinx* or *Brachyglora atropos* of others. At first the caterpillar is of a dirty-red colour, but becomes yellowish green, granulated with minute black tubercles on the back, and having seven oblique pairs of stripes on each side; the pairs are formed of one blue and one white stripe, with a purplish tint in the centre. The coral or tail spine is brown. It feeds chiefly on the leaves of the potato and jasmine, but is found occasionally on the woolly nightshade, thorn-apple, elder, spindle tree, &c. It is rarely seen, for it feeds by night, and hides by day beneath the leaves, and even in the earth. When full-grown in August or September it descends to a considerable depth underground, whence it is a deep chestnut-coloured chrysalis, and in a few weeks appears again as a perfect moth. Its appearance occurs at the end of September and in October. This magnificent moth measures from four to five inches across its fully expanded fore-wings; the wings are very dark brown, varied with black in undulated and rusty-brown patches. The hindwings are pale dirty orange-coloured, barred with greyish black. The abdomen or body is also dirty orange, striped with the same kind of black, and having a lead-coloured stripe down the centre of its back. The head and thorax are brownish black, and on the back of the thorax is that peculiar skull-shaped mark which has obtained it the very descriptive name of the *Death's-head* moth. This, added to its



size, and the shrill, mournful noise which it makes, renders it an object of terror to the ignorant; but it need be so only to the hearer, for this huge powder of the night often steals into the hive and robs it of the honey. We may notice that this moth always comes forth from the chrysalis between four and seven in the afternoon; being in this as regular as the silkworm moth is in coming forth at sunrise, and the Lime Hawkmoth at noon.

DEATH has been busy again among the gardening community. In the past month he singled out two men well distinguished among us in their peculiar departments.

MR. CLEMENT HOARE, one of the most enthusiastic cultivators of the grape vine, died on the 18th of August, aged 60. Mr. Hoare, we believe, was a schoolmaster near Chichester, where, as a relaxation, he cultivated the vine, and collected a large and valuable assortment. "The result," to use his own words, "of many years' diligent investigation and patient observation," was published during the year 1835 in his "Practical Treatise on the Cultivation of the Grape Vine on Open Walls," and of which work it is not too much to say that it is the best that has appeared on the subject. That which was agreeable and profitable as an amusement became ruinous when adopted as a commercial pursuit. He moved in 1841 to Shirley, near Southampton, and, having taken thither all his vines from Chichester, he endeavoured to derive an income from the sale of vine plants. In 1843 we sought from him some information relative to the cultivation of the vine under glass, and thus wisely did he answer us:—"I am about to commence a series of experiments—experiments which will, I expect, occupy a space of not less than three years;" and he proceeded to add, among other observations, that until those experiments were completed he "must abstain from giving any directions relative to the culture of the vine in this manner." Unfortunately for his better fame he did not abide by this resolution with regard to other points of culture. Misfortunes came upon him, and he sought for aid in publishing his work upon "Planting and Managing the Roots of Vines," in which he promulgated a method of growing them in hollow pillars—a method which at once met with the condemnation it merited. Soon after Mr. Hoare became insolvent, his "Vineyard" was broken up, and we fear that, heart-subdued, he has sunk before his time into the grave.

MR. DAVID BISHOP is the other horticulturist to whose death we have alluded, and to our contemporary, *The North British Agriculturist*, we are indebted for this biographical notice:—

"At Malone, near Belfast, on the 4th August, Mr. David Bishop, in his 61st year, a victim to the prevailing epidemic. Of the father of Mr. Bishop we have no recollection, farther than that he was considered a man of very superior attainments, and considerably in advance of his brethren at the time in which he lived. Of his family, there only now remains one daughter, still resident in the village of New Scene, and one son, Mr. Thomas Bishop, long gardener, and for many years factor, upon the estate of Methven, a property perhaps improved more by his judicious management than any other in Scotland. Mr. Thomas Bishop is well known to the agricultural and horticultural world by his numerous essays in various departments of these sciences. To him Scottish agriculture is deeply indebted for improvements in the artificial grasses, as well as for

his many and successful experiments upon the potato. Gardening is indebted to him for many of our modern improvements, and, in an especial degree, for the pains taken in instructing those young men placed under his direction, some of whom have long not only been a credit to their kind-hearted preceptor, but also ornaments to society. Mr. Thomas Bishop is one of our best and most energetic British botanists, and it is with much pleasure and gratitude that we have an opportunity of publicly acknowledging that our first lessons in botany were received at his hands. As an arboriculturist, he is also esteemed one of the first and best, and the pinetum planted by him in the moor of Methven will be a monument to his memory long after 'he is gathered to his fathers.' Mr. Wm. Bishop, another brother, was an excellent gardener, and died at an early age while assisting the late eminent Mr. Jenkins in laying out the Regent's Park, near London. He was the first who successfully propagated the camellia by cuttings. Mr. David Bishop, the subject of our present notice, was the youngest of six sons of Robert Bishop, who was 49 years planter and gardener to the Mansfield family, at Comlongan Castle, in Dumfriesshire, and Seone, Perthshire. He served his apprenticeship to his older brother Thomas, at Methven Castle, who was then forming a collection of British alpine plants, which seems to have given him a taste for these plants, which never left him. He wrought successfully under Messrs. John Mitchell, gardener at Moncrieff House, and Robert Miller, gardener at Dupplin Castle; both of whom were devoted to botanical science, and admirers of flora. Afterwards, he went to London, and wrought for some years there, when he obtained the situation of gardener to Lord Bagot, Blythfield, Staffordshire; and some years afterwards to Lord Elgin, Broomhall, Scotland. On leaving his service, he took a season to botanise on the mountains in Scotland. He was a day and a night alone on the highest of the Cairngorms. Went again the second time on foot to London, and dedicated his time to literary pursuits, and for a time acted as an amanuensis to the late Mr. Loudon, by whom he was much respected. As the author of 'Casual Botany,' one of the few original botanical works that has issued from the British press in modern times, he has displayed an intimate acquaintance with the subject treated on, and adopted a style in composition at once clear and conspicuous, while, at the same time, it is unumbered with those technicalities which too often tend to bewilder rather than instruct. With this work he travelled the greater part of England and Ireland, visiting the mountains on his way in search of plants, having discovered many new species and varieties, and fixing the habitats of others seldom to be met with, and thereby becoming acquainted with many scientific friends. About 1830, Mr. Bishop was appointed curator of the Botanic Gardens at Belfast, and upon resigning that charge took ground at Malone, near that city, where he has since resided, and amused himself in collecting rare British plants, in the pursuit of which, we believe, he has perambulated every county in the United Kingdom, performing the whole as a pedestrian. His botanical discoveries have been important, and many new habitats has he given for many of our rarer plants, more especially ferns, with which interesting family he was well acquainted. The most extraordinary of his discoveries, we think, was that of a very singular form assumed by *Juncus effusus* in the wilds of Comerara, a plant before undetected by any botanist, and by him kindly presented to us. This extraordinary plant was exhibi-

bited at a meeting of the Botanical Society of Edinburgh, from the collection at Dalkeith, by Mr. James M'Nab, and created great interest; but not more than was shown by Sir William Jackson Hooker, director of the Royal Botanic Gardens at Kew, and Mr. John Smith, the talented curator of that establishment, as well as by many of the leading botanists round London, to whom we also sent specimens. Mr. Bishop's name will long be held in remembrance in every garden in Britain, from the circumstance of his originating two varieties of pea of exceeding dwarf habits, and of great precocity and productiveness. The last of these, '*the Early Long Podded Dwarf*,' is decidedly the best pea in cultivation. Mr. Bishop had a great taste for music, and was considered one of the most chaste violin amateur players in the kingdom. His manner was mild and unobtrusive, particularly with strangers, yet frank and communicative with those he was intimate with. He was doomed to see many of the vicissitudes of life, yet, in his most depressed state, had the highest regard to honour and integrity."

ANOTHER pest of the garden has this year forced itself prominently into notice by its ravages. We allude to the insect which has been and is carrying destruction wholesale among our lettuce crops. Upon submitting specimens of the insect to Mr. Westwood, the well-known entomologist, he informs us that other specimens have been sent to him, that they belong to a species which he did not find anywhere described, and to which he has given the name of *Penphigus lactuce*. The specimens we received were from the garden of Mr. Savage, of Winchester. About one hundred Green Cos lettuces were planted early in July on a light southern border, resting on a clayey marl subsoil, it being manured with a compost formed of earth, lime, garden refuse, and house sewage, and the preceding crop being early peas. During their early stages of growth the plants looked vigorous, but when they had attained to about half their full size, the leaves, after for some time exhibiting a green hue unnaturally dark, drooped, as if for want of water, and the whole vigour of the plants was departed. This appearance did not occur to a few of the plants at a time, but the whole of the one hundred were at once affected. Upon taking up some of them, the tap and fibrous roots were not decayed, but myriads of small dirty-white coloured insects were upon them, and pervaded the soil in their immediate neighbourhood, and their exuvæ gave to it and to the lettuce roots the appearance of being mouldy. Mr. Westwood informs us that the insect belongs to the winged division of the *Aphide*, or Plant Lice, and to Hartig's genus *Penphigus*, which differs from the common aphid by having its antennæ six-jointed, and its wings veined more simply, as well as by having no honey-secreting tubes at the extremity of the body.

We thought, with Mr. Westwood, that this species had not been previously described, but we have since found it was thus very fully noticed, in 1846, by the

Rev. Mr. Jenyns, under the name of the "Lettuce Blight:"—

"In the summer of 1844 the entire crop of lettuces in my garden were destroyed by a blight at the roots, arising from the attacks of a small species of *Eriosoma*. This insect had never shewn itself there in any previous year to my knowledge. In this instance, all the young lettuces, from six to nine inches high, were observed with their lower leaves flaccid, and flat on the earth, as if parched from drought: the older ones, which had been tied up for blanching, were some of them completely dead and brown at the heart, others dying. No insects were observed upon the plants above ground; but, on pulling them up, the fibres of the roots were found thickly matted with a glutinous cottony substance, amongst which were crawling hundreds of the larvæ and pupæ. This was on the 28th of August, and at that time no perfect insects were as yet visible. The larvæ were of all sizes, some very small, and apparently but just hatched: here and there imbedded in the cottony substance were the eggs themselves. The former were rather active in their movements, of a green colour, with six rather short feet, the hinder pair not longer than the others; the antennæ also short, of six joints. The pupæ had rudiments of wings, but were similar to the larvæ in all other respects, except in being larger; they were exactly a line in length. On placing some of the lettuces under a bell glass, several of the perfect insects appeared on the 3rd of September; others following in succession for some time afterwards. These were of two colours, perhaps characteristic of the two sexes. Some had the head and thorax dusky brown; the abdomen pale dusky, tinged with greenish-yellow; the legs dusky, with the joints rather darker: others inclined generally to ochraceous-yellow, especially the abdomen, and the collar between the head and thorax.*"

"Amongst the larvæ at the roots of one lettuce I observed a single specimen of the larva of some other totally different insect, which appeared to be feeding upon them. This latter was vermiform, and much attenuated towards the anterior extremity, which was very protractile; it was of a pale green colour, and about two lines in length. There were also some small brown cocoons among the roots, here and there, likewise about two lines in length, which I kept in the hope of their turning to the perfect state, but without success. Probably these were the larva and pupa respectively of some dipterous insect, which keeps the root *aphis* in check. When once, however, the nuisance occasioned by this last parasite shews itself in a garden, the only effectual way of getting entirely rid of it is immediately to pull up all the diseased plants and burn them."

* "If the above be an undescribed species of *Eriosoma*, which is extremely probable, from the little attention which has been paid to the insects of this family,—it might be named *E. lactuce*, and thus characterized: *E. capite et thorace fuscis; abdomine oblongo fuscescenti-ochraceo, vel viridi-ochraceo; pedibus fuscis, articulis subultratis. Long. 1. lin.—Hab. ad radices lactuce sativæ.* Possibly it may be the *Aphis radicum*, briefly alluded to by Kirby and Spence, (vol. ii. p. 89.) as deriving its nutriment from the roots of grass and other plants. There are, however, without doubt, several species of these root *Aphides*. I have occasionally observed another, besides the one described above, at the roots of the *Lepusacchia summeraria*, when growing in a pot in my garden, and rendered unhealthy by being kept too dry. This was likewise a species of *Eriosoma*, but differed from the *E. lactuce* in having the abdomen shorter and broader, (or more approaching to round than oblong,) and in being more sluggish in habit, hardly attempting to move when taken from the plant; it also kept more on the surface of the ground, at the bottom of the leaves and stems, than underground, though many might be noticed at the roots themselves. Reaumur has given a list of plants, at the roots of which he had found *Aphides*, but the lettuce is not included. *Hist. des Ins.* (12mo. ed. Amst. 1738.) tom. iii. 2nd part, p. 86."

THE FRUIT-GARDEN.

THE VINE OUT OF DOORS.—We come now to an important period as to the vine as well as most other tender fruits—a period in which all the solar light our hickie autumnal skies affords will be needed in order to give colour and flavour to the fruit and to complete the organization of the blossom-bud for the future year. As we have before observed, we have not a doubt that vine culture out of doors, at least in all our more southern counties, would become much extended if the main principles of acclimatizing (by which the formation of the very border should be regulated previously to planting,) as also the subsequent management on the walls were better understood. No wonder, however, that the advance has not been of a more rapid character (as to the extension of their culture), since the question of the proper construction of borders has been in constant agitation amongst practical men, or even those who combine much practical experience with high scientific acquirements, for the last score of years. Until such parties become somewhat unanimous as to first principles it is not likely that our intelligent public will place much confidence in the nostrums of either Mr. A. or Mr. B.; however, much progress has been made and much good arisen out of this protracted discussion. Time was when strong loamy soils, abundance of manure, and borders of some six or eight feet in depth, had their advocates amongst men of first-rate practice; now, we question whether there is a single gardener of any standing in his profession in the United Kingdom who will advocate two out of the three conditions here named. It begins to be generally understood that it is chiefly on a just knowledge of the *mechanical* texture of soils that we must rely for success. It has been ascertained, beyond doubt, that the burying a vast proportion of manure in the soil for the roots of tropical fruit-trees to gorge themselves with tends only to that kind of repletion which is at once opposed to the hardening of the wood, and, by consequence, to the maturity of the fruit-bud.

We have said thus much in order to guard inexperienced persons from hastily inferring—in case of failure—that their climate is not suitable to the vine, and who are thus apt to give up its culture in despair. The subject of border making, with the necessarily concomitant questions of depth, texture, richness, &c., is a fitter matter for discussion during the dormant period, and we shall then probably find occasion to revert to its consideration.

We glanced in our last paper on the culture of the vine out of doors, on the necessity that would arise for clearing away many of the lateral or axillary shoots which were retained for awhile for a double purpose, viz., to prevent the superior fruit-buds of the future season from being forced into premature growth, and also to assist in the general elaborations. The period for such operations has arrived, and we may here observe that it is one of those processes which is better done by instalments. "Nature does not like to be taken by surprise." Something depends on peculiarity of situation in those matters; much on the prevailing character of the season. Some autumns are so very sunny, that, unless lateral shoots much abound, there is little occasion to be anxious about them for a fortnight to come; other seasons are so clouded and damp that the advice we here offer might have been put in practice a fortnight sooner: thus, like most other horticultural proceedings, the mind of the cultivator must be brought to bear on the subject. This is as it should be; this it is which creates such

an interest in gardening affairs—an interest which increases at a more rapid pace in Britain than any other country; owing, no doubt, to the inestimable blessing of internal peace; for war is not a befitting cradle for horticultural science.

We would say, then, under general circumstances, early in September let every lateral be stripped away which shades the principal leaves or intercepts the sun's rays from shining on and heating the wall. In the beginning of October it may become necessary to thin out a leaf here and there in order to throw a little sunlight on the fruit itself. This will both augment the colour and flavour, and tend to dissipate any moisture which may occasionally lodge amongst the berries. If any of the *leading* shoots are still growing they should be stopped also, as no benefit can accrue to the plant at this period from being allowed to produce late and immature foliage, which can never add to the elaborations of the plant, but which will detract from them.

Nothing will now remain but to secure the fruit from wasps or flies, and to remove decaying or blighted berries, if such should appear. Bottles of some kind may be suspended, containing a little sugar and water, to which may be added a little strong sour ale or the bottoms of wine bottles: the stronger the material, the more effective it will prove. Those who may be fortunate enough to possess old sashes from houses or pits, and which are not wanted for other purposes, will do well to lean them against the wall before the vines: such will prove of immense service.

FRUIT GATHERING.—We recur to this subject in order to observe that it requires constant watchfulness. There is no occasion to gather the whole of a tree at once; indeed, such a course, although imperative with those who grow fruit on a large scale, is inexpedient with the amateur or the cottager. It will be found, with regard to most of our apples and pears—table fruits we mean—that a great difference in regard of ripeness exists on the same tree at the same period. By gathering them at two or three periods a much longer succession will be promoted. This mode of procedure applies to most of our apples and pears: those of a late ripening habit and possessing keeping properties especially. Let every care be taken in the act of gathering: too much stress cannot possibly be laid on this; and it lays in the power of the amateur to take double the pains which can be taken by those who grow fruit extensively for sale, and whose object, therefore, is of a very different character.

THE DOUBLE BEARING RASPBERRY.—Much care should be given to these autumnal raspberries as they ripen, for the birds will take them if not well looked after; and to gather them before they are ripe is to lose what little flavour they naturally possess at this season. A few should be gathered every fine day if possible, and they may be suffered to accumulate in a tolerably warm room, where, with due care in the handling, they will keep for two or three days and improve in flavour.

THE ALPINE STRAWBERRY.—The same course must be pursued with these as with raspberries, taking care to handle them only when they are quite dry, for they are very tender in texture when fully ripe.

LATE PEACHES.—Some kinds will still be found on the trees in late districts, especially such as the Late Admiral, the Bellgarde, and the Catherine, as also the Newington nectarine. Every leaf which shades the fruit should be pinched entirely away, for it is essentially necessary that the sun should shine on the fruit at this season.

LATE DESSERT PEARS.—In late situations, late ripening kinds, such as the Glout morean and d'Aremberg section, the Ne plus meuris, the Winter neilis, the Beurré rance, &c., will, at times, prove too late to get their full amount of flavour, unless some extra means be taken to admit the solar rays. When such is the case we advise another inspection of the trees, and if any of the cut-back spray can be further shortened back, so much the better. In extreme cases, the whole to be removed in winter might be removed clean away at once, for the embryo blossom buds will enjoy the full amount of solar light as well as the fruit. It is for want of precaution of this kind that so much bad "setting" is complained of in the spring; what else could be expected from the sharp white frosts of April attacking half-organized blossoms?

SUCKERS.—Another point of bad culture is the permitting suckers to grow through a whole summer, smothering the lower branches of fruit trees. The harm they do to the root is as nothing in comparison with the damage often occasioned by their insinuating themselves (as they frequently do) at the back of the branches of wall trees, and then branching forth and choking by their gross shade the sprigs or buds on the lower portion of the tree. If such have not been destroyed, let them be rooted out immediately.

R. ERRINGTON.

THE FLOWER-GARDEN.

ROUTINE WORK: PROPAGATION.—This month and the next may be denominated, with strict propriety, preparing and conservative months; preparing for next year by propagating, and conservative by taking care of them when propagated. Bearing these two principles in mind, our readers will act wisely if, taking time by the forelock, they carry these principles out. The plants that ought to be propagated now, if not already done, are anagallis, cinerarias, fuchsias, gaillardias, heliotropes, lobelias (dwarf), mimulus (herbaceous), petunias, phloxes, pentstemons, salvias, shrubby calceolarias, scarlet geraniums, and verbenas. Put these cuttings rather thickly in six-inch pots, placing them in a frame, and, for a fortnight, shading pretty closely when the sun shines; after that, gradually leave off the shade. By this is meant shade a shorter time every day, and to prevent them from being too hot give air very moderately at first, increasing the air as you lessen the shade. This must be attended to in all cases of plant culture, whether in frames, pits, or glass houses of any description. Whenever shading is used, the quantity of air given ought to be lessened; and as the cuttings or plants attain strength to resist or bear the power of the sunshine, the quantity of air given ought to be increased. In the case of cuttings which we are now treating of, as soon as you perceive symptoms of growth try them as a bird tries its young when she observes the wings nearly grown. If the cuttings will endure the sun and air you may be pretty sure they are rooted, and then give air and light accordingly. In order to keep them low bushy plants, pinch off the tops at a very early stage; this will induce side shoots, which may be stopt again. If you have plenty of room you may pot off the most forward, but this is not absolutely necessary at this season of the year, as the plants will not grow much during the winter months, and by keeping them in the cutting pots a much larger number of plants can be preserved for the spring.

Supposing you have been successful in propagating these useful plants, the next thing is to prepare for taking care of them; and, besides cuttings, you will have by-and-by a host of other plants for which room will be required to conserve them from the winter's frost. Prepare, then, in good time, safe retreats. Build pits of bricks laid well in mortar; if expense is not minded build them with hollow walls, that is, two rows of brick with a space of about three or four inches between, and a coping at the top to bind them together. The air in this cavity acts as a non-conductor, keeping out the cold of winter and the heat of summer. If you have the means to send a hot-water pipe through the pits in front, it will be useful in extremely cold weather, especially in the more northern districts. Cover these pits with glazed frames, and provide mats and straw.

STRAW MATS.—We have used straw mats, and found them excellent, as no frost could penetrate them, especially if a covering of bass mats were added. Straw mats are formed of little bundles of wheat straw tied together so as to form an oblong mat of proper size for the frame it is intended to cover: generally those frames are about four feet wide and five feet long, and the straw mats ought to be of that dimension. They ought not to hang over on any of the sides. Having got all these things in readiness, you are prepared for any sort of weather.

To our cottage friends who cannot afford brick pits we strongly recommend pits made of turf, which are good shelters for wintering half-hardy plants, and even, if well made and duly covered, of keeping alive more tender things; moreover, we say to all our readers, of whatever rank, *be in time*. Have those frames, pits, &c., got ready without delay, for Jacky Frost is something like a railway train—he will not wait till you are ready for him.

HARDY LILIUMS.—A correspondent having inquired for a list, and directions for the culture, of these splendid flowers, we have the greater pleasure in giving that information because we know it will be useful to many of our readers. The lilies have been great favourites from time immemorial; Solomon mentions them with great praise, and our blessed Lord says that that prince of wisdom, when most gorgeously apparelled, was not equal in beauty of array to one of these. Beyond dispute they are the most regal of all flowers, whether we consider their majestic bearing, or whether we look at the pure unsullied white of *Lilium candidum* (white lily), or the brilliantly spotted tiger-like, *Lilium tigrinum*. It is a great recommendation to the tribe, also, that they are perfectly hardy, and, comparatively speaking, of easy culture: only a very few species require an extra amount of care.

Being a large tribe, to cultivate them successfully, so as to show off their majestic forms, a rather large space will be needful to contain them, even if only one or two of each be grown. The following are the names of the species, and the number of varieties are denoted by figures. The letter *a* prefixed denotes that the species is rather tender.

Lilium candidum (white); *a. Japonicum* (Japan); *a. longiflorum* (long-flowered); *Nepalense* (Nepal); *Carolinianum* (Carolina); *bulbiferum* (bulb-bearing), 2 var.; *latifolium* (broad-leaved); *a. lancifolium* (lance-leaved), 3 var.; *spectabile* (showy); *a. concolor* (self-coloured); *Catesbyi* (Catesby's); *Philadelphium* (Philadelphia); *Andinum* (Andes); *Canadense* (Canadian); *penduliflorum* (pendulous); *superbum* (superb); *Martagon* (Turk's cap), 5 var.; *a. glabrum* (smooth); *croceum* (crocus); *Chalcedonicum* (Chalcedonian);

Pyrenaicum (Pyrenean); *pomponium* (pomponne); *a. monodelphum* (one-brotherhood); *tigrinum* (tiger-spotted); *pumilum* (dwarf); *a. tenuifolium* (slender-leaved); *a. Buschianum* (Busch's); *peregrinum* (beaked); *a. eximium* (beautiful); *speciosum* (shewy); *aurantiacum* (orange), 4 var.; *atrosanguineum* (dark blood-coloured); *Thunbergianum* (Thunberg's); *coruscans* (glittering); and *Sibericum* (Siberian).

CULTIVATION.—Lilies love a sandy, deep, rich soil, and an open situation. The flowers being large and weighty, and the stems of most kinds but slender in proportion, they require supports. Stakes of the proper height and strength must be procured, and placed to the flowers at the proper time, that is, a little before the flowers expand. As they have bulbous roots, care must be taken not to injure these by driving the stakes down so near the plants as to touch the bulbs.

PROPAGATION.—These plants may be propagated by seeds, which, however, is not produced very plentifully on some kinds, and, as seedlings are a considerable time before they flower, it is a method not much practised. This is to be regretted, as the chances are that if raised by seeds we might obtain some fine varieties, and the Japan lilies, *Lilium lancifolium*, the Tiger lily, and the Martagon, are all likely to hybridize with each other, and produce either a finer variety or a more hardy one. The usual way to increase lilies is by *offsets*, which are produced pretty freely on the under side of the parent bulb. If these are taken off as soon as they are the size of a walnut, and planted in rich soil in a nursery bed, in two or three years afterwards they will be large enough to flower, and should be transplanted into the blooming situation. When lilies have stood several years in the same place they exhaust the soil, and make small bulbs and few flowers. In such a case, about the end of September take them up, and replant them in another situation and fresh soil. If you have no other situation, remove the old soil away; put in the hole some rotten dung, and mix it with the soil below; then place as much fresh sandy earth as will fill up the hole level, or rather above the level of the surrounding ground. Plant the roots immediately, as they are much injured by long exposure to the air. The right depth depends upon the habit of the species. If of strong growth, like the common orange lily, the top of each bulb should be at least four inches below the surface, but for weaker growing kinds, like *Lilium concolor*, two inches will be proper.

There is a method of increasing very scarce kinds which we have practised successfully. The lily is a bulb, as is well known, of the scaly kind: that is, each bulb is made up of a number of scales seated upon a common receptacle or bottom. Each one of those scales has, within itself, the power to form a separate bulb. To put that power into play, all that is necessary is to separate each scale carefully from the rest, preserving, if possible, the small portion of the receptacle that it sits upon. Plant the scales so separated under a hand-glass, in pure sand, and they will soon send out roots, and form a small bulb at the base of each. These must be carefully nursed, rested through the winter, and set to grow in the spring, to go through the same system of development as the offsets above mentioned.

Some kinds of lilies produce offsets on the flower-stems annually, particularly the Tiger lily, and the bulb bearing. These offsets, or small bulbs, fall to the ground in the autumn, and will, if covered with a little soil, soon make plants. The best and more

scientific mode is to gather these embryo plants and put them in a bed by themselves, and, as soon as they are large enough, which will be in about three years, to plant them where they are to flower.

FLORISTS' FLOWERS.

THE TULIP.—In our last Number we gave some instructions about forming or renewing an old tulip-bed in which the soil was exhausted. We purpose, to-day, briefly to state what we consider necessary to be done now with a bed or beds that are *not* exhausted. Proceed as before to stretch a line on the side of the bed, provided it is not edged with slate or wood; thrust the spade down to the depth of the soil and work it backwards and forwards all round the bed; then commence at one end, and throw half the soil on one side and the other half on the other; examine the drainage, and if it is not right make it so. Let the soil thus thrown out be exposed for a month or more, to mellow and receive all the benefits an exposure to the air will give it. T. APPLEBY.

GREENHOUSE AND WINDOW GARDENING.

HOUSING.—Nurserymen in all parts of the kingdom are now busy among their young stock preparing for "housing" it, by which term they describe putting plants under glass. You may see rows of men at this work in every great nursery, and there the division of labour is carried out to a great extent. The first person takes up the pot, raps the edge of it on something solid—sometimes on his own knee, or against the point of his shoe, or what is not a bad contrivance, against the tread, or shoulder, of the blade of a spade stuck firmly in the ground beside him for the purpose. This first move is, or should be, done rapidly, and is intended to look out for worms which may have got access to the pot, and if they get the least warning of approaching danger you lose sight of them for that day. The next move is to see that the drainage is perfect, and a little adjustment of the crocks, if needs be, will soon put that right. Then the pot is passed to a second person, who, with an old knife or a flat piece of stick, removes any dirt or moss, weeds, &c., from the surface; therefore this division of the occupation is called "surfacing." The pot is then handed on to a third person, to be cleaned with a wisp of dry hay or straw, or with a cloth, or, if very dirty, with a scrubbing-brush and water. This last, though the most drudging part, must be put into careful hands, as an unaccustomed workman might destroy a valuable collection by the mere simple process of washing the outside of the pots, so that my readers who are nursing on a smaller scale had better see to this important point. The water in the tub must soon get very black and nasty from the slime and dirt scrubbed off the pots, and if this is allowed to soak the earth inside the pot it will glue the whole together, so that the plants will not seem to want for water for many days, and when it is given them it will hardly pass into the soil at all, but must run down by the sides; therefore it should be made conditional with him, or her, who washes flower-pots in the autumn, or, indeed, at any time, that none of the water touches the soil, not even if the inside of the rim of the pot is green and must be washed. After that, the old stakes, if any, should all be tested, to ascertain if they are still sound and in their proper places, but, if the plants are intended for a greenhouse or window, this

part may be left undone; and also new or proper labels need not be provided till the first bad weather will stop out-door work. It would also give a neat finish to the whole if a slight covering of fresh soil were put over that in each of the pots, first seeing that the old soil is uniformly moist, and then, with a fine rose, to give a slight shower over the foliage, earth, pots, and all. If the stages, glass, paths, &c., are clean and dry, and you allow the plants to get dry also after this preparation, there is no reason why they should not do very well for a long time; and the only other point which occurs to me at present is this, that, as soon as plants are "housed," the watering should henceforth, for the winter season, be done early in the day and never in the afternoon, for reasons which must be plain enough to any one who has hitherto read *THE COTTAGE GARDENER*. Another very wise plan at this season would be to look out all greenhouse or half-hardy plants that have been growing out of pots in the open garden, and such of them as are intended to be potted again, or even to be taken up to shelter from the frost, and to be secured in sheds or cellars, should now have their roots gradually prepared for the change, as I have remarked on some weeks since, by cutting a portion right through with a spade. Besides the advantage of making more sure at the time of taking up such plants, their growth in the meantime is checked, therefore they will ripen the young wood better; and, if they are late flowering plants, such as scarlet geraniums (they are not pelargoniums, at any rate), and the soil is rich and damp, they will now make more leaves and shoots than flowers, but by a little curtailment at the roots this disposition is reversed. In the case of half-hardy shrubs in the open borders, which are to be potted or even protected where they stand, a little cutting of the roots would now be very useful to them, and also a regular pruning all over the branches, cutting back the softest part of the tops. Seedlings of these plants when turned out in the open soil have a natural disposition to ramble away late in the autumn, and if this is not checked in time no one can keep them over the winter.

SCARLET GERANIUMS are often taken up, carefully potted, and put in the shade for a week or ten days, about the end of this month, and when they do well that way continue their bloom for some time, and are very useful in the greenhouse. This cutting off the roots previously to their removal would almost insure success. I have heard of people putting these and similar plants into a close hothouse as soon as they were potted from the borders, to make them root the faster, as they said; but the truth is, although they may root freely enough, the sudden shifting will assuredly injure their bloom for the rest of the season. Every one regrets the loss of favourite specimens, which grow too large or cannot well be removed after they are once planted out; but with a preparatory cutting of their roots and top branches they may be preserved for years.

A section of the scarlet geranium called *Nosegays* will bear a smart forcing in February and March, if they are now properly prepared, so as to be ready for their flowering pots by the end of October. Plants of them two years old answer best for forcing, but any healthy plants of them now growing in the borders may be so managed as to come into bloom before the middle of April with a little spring forcing. Their roots are not to be cut at this stage, but all their side branches and their leaders must be cut close, not leaving more than a couple of eyes on any of them. As the *Nosegays* are a tall, long-jointed

race, and without close pruning you can do little good with them, in a week or ten days after they are thus cut a host of young branches will spring up from all parts of the stems if the plants are old, and as soon as their leaves are about the size of a shilling is the proper time to remove them from the border to be potted, and the process is only a repetition of that to tall pelargoniums. Their roots are shortened, so that at first potting they may be put into small pots, and kept close for a while to encourage new roots. This close forcing, which I have just condemned in the case of large plants with their full complement of leaves, roots, and flower buds, is highly beneficial when all these are either in a great measure wanting or in a crippled state. As soon as the first pots are full of roots the plants are repotted into larger ones, but at that late season only one size larger; and the third shift, if not the second, should be their flowering pots, but that depends on the size of the plants, and the facility with which they will rest. They should be kept at greenhouse temperature close to the glass, and be regularly watered through the winter. Early in February let them be brought into a forcing pit, but a good hot kitchen window would answer the purpose, provided that the plants were wintered in a cold pit.

FREQUENT REPOTTING.—None of us have yet explained why it is that gardeners do not put such plants into their flowering pots at once, and so get rid of the trouble of frequent pottings, but here it is at last. If we were to put a pelargonium into a full-sized pot after its roots were shortened, the young roots would all work out to the sides of the pot, and then coil round and round in the usual way, so that, whatever the size of the pot and ball might be, the roots are feeding in a great measure only on the outside of the ball; whereas, by the use of small pots and progressive shifts, the roots must be at work in all parts of the soil. Country readers will understand this better when I say that folding sheep on turnips is like planting in the small pots, and both the fold and the small pot are shifted as soon as their respective contents are appropriated. Yet the farmer's sheep and the gardener's plants would get on very well without folds or small pots, but it would be wasteful in both instances; yet, for all that, you see at lambing time the shepherd allows some of his pet ewes to roam over a whole turnip field at will, and the gardener does the same with pot plants by what he calls a *one-shift system*. Many plants, however, cannot stand such good feeding; they soon take a surfeit.

FORCING BULBS.—The earliest of this class is the *Double Roman narcissus*, and, very fortunately, it is the easiest to manage of the family. Any light soil will do to grow it in, and the usual way is to put three bulbs into a 6-inch pot, or two in a 5-inch pot, and a dozen of such bulbs may be had for three or four shillings. After potting give a good watering and set the pots in some out-of-the-way place, where the heat of the sun cannot reach to stimulate the bulbs to make leaves before they have made roots, for that is the grand secret in forcing all kinds of bulbs. The pots should be at the least half filled with roots before you can see the bud of leaves, so to speak, in the centre of the bulbs. This *Double Roman narcissus* is a famous one to root fast, therefore, as soon as you see the roots working down freely into the mould in the pot, you may take the pots to a kitchen window, if no better convenience is at hand. Indeed, I know of no better place in which to force these hardy bulbs than a good kitchen window facing the sun. If their

leaves grow too fast or weakly, you can lift the bottom sash and turn them outside in the middle of the day, and there is always warm water ready for them. The air is also dry about them and in constant motion, for the draught of the chimney sucks up the air continually, so that fresh air is constantly pouring into a good kitchen. Fresh air is just as useful to plants as it is to cooks and kitchen maids; and if ever you see plants or maids look pale and languid in a kitchen, depend on it the fault is more in the want of ventilation than in anything else.

The next earliest bulbs are the single and double *Van Thol tulip*. The usual way to plant them is to put five of them in a 6-inch pot, or what used to be called 32's, and three into a 5-inch pot.

There are three more of the narcissus family very good for forcing, but not nearly so early as the Double Roman; these are called *Soleil d'Or*, *Studdles General*, and *Grand Montique*. These are the best, but there is hardly an end to the number of narcissi, and they might all be grown in pots. Then of *tulips*, besides the Van Thol, there are Claremont, Golden Standard, and Royal Standard, three of the best and second earliest with *Rex rubrorum*, *Marriage de ma Fille*, and *Turnsol*; these of the later sorts are very good for forcing. There are scores of other sorts, I dare say, just as good, but the above are the cream of all that I have tried myself, and I recollect having tried 42 sorts one year. There is a little yellow tulip with a drooping flower, called the *Florentine tulip*, and some people are very fond of it for forcing, as it is rather sweet.

The double and single *jouquils* are also easily forced, and all the *hyacinths* will force, either in soil, moss, or water. It is true that the dealers recommend such-and-such sorts as being best for either way, but I could never make out any difference in any of them. If the bulbs are strong and healthy, and the roots get well forward before the leaves begin to grow, I believe any hyacinth will do well enough either in water, moss, or in soil; but I prefer moss as the least liable to get out of order. Water is the most damaging to the bulbs, and soil may get too dry, or too damp, or mouldy, or the drainage may get stopped, and many other unlooked for difficulties besides may occur to it, but moss is free from such impediments. Like a sponge, it holds enough water and no more, the roots run through it in all directions, and at last crowd at the bottom of the pot where the moss is beginning to rot, and no doubt they feed on it in that state. The different bulb growers in Holland give different names to their seedling bulbs although they may be the same variety; this is often unavoidable, but it is very puzzling when you come to make a selection.

D. BEATON.

HOthouse DEPARTMENT.

WE lately directed attention to the benefit in early forcing, of having steep sloping instead of flat glass roofs. For many purposes these steep roofs, provided they are not carried to an extreme, would be the most serviceable at all seasons, for while they command the greatest amount of light in winter, the number of rays that would be reflected in summer would render shading next to unnecessary. When once those matters come to be thoroughly thought about, many things will receive the benefit of nice upright little houses, which are now obliged to get on as best they can in flat-roofed pits and frames.

Having settled upon the angle of the house, the next thing to be attended to is the

FORMATION OF THE BORDERS, both within and without, if it be your object to plant in both positions. The subject is a large one, but has already been handled by our able coadjutor, Mr. Errington, and, therefore, requires less notice now, as such a border as will grow tender trees well out of doors will not fail to accomplish the same object in the case of those grown within, provided their relative circumstances are attended to. A few words, however, may not be out of place. In most situations we should have, for vines and other tender trees, an *impervious bottom* for their borders; that bottom sloping considerably, say at an angle of from 75° to 80°, from back to front. At the front there should be a deep drain, and, if the border is large, a cross drain should run from back to front, below the level of the hard flooring, in every 15 or 20 feet. At the termination of the drain at the back, and opposite to it in front, upright tubes should be inserted, that the air may circulate through the drains and amongst the open rubble that covers the impervious bottom. This rubble, consisting of brick-bats, clunkers, hard lumpy chalk, &c., should be at least one foot in thickness. The bottom may be rendered impervious to the roots by means of paving-stone, tiles, slates, or by means of one part of quick-lime to six or seven parts of gravel, with just sufficient water to blend them quickly, and laid down four inches thick. The great object of such bottoms is to prevent roots getting down, which is one great cause of unfruitfulness; as the crude juices formed, owing to too much moisture being absorbed, cannot be sufficiently elaborated in the case of plants which are natives of climates more sunny than ours. The case of a hardy forest-tree is a different affair, the deeper its roots go the more luxuriantly will it flourish; the obtaining of timber and the securing of fruit are different results, which must be accomplished by different means. In well drained shallow borders the soil-moisture absorbed by the roots is more *aerogenated* from contact with the atmosphere, which is found to assist the processes of elaboration and assimilation by the leaves. "Well, but," I hear a friend stily ask, "do all you gardeners have those impervious bottoms?" No! but that is often our *grief*, not our *glory*. Were we building a new house, we have had sufficient experience in the matter to lead us to *try* and do what we are recommending. We are, therefore, not to be enrolled among that class of worthies who, when told that their practice and their teaching did not agree, replied, "Do not as I do, but do as I tell you." What we advise, we have done, and would be ready to do again. True, many of our best gardeners are opposed to the practice, and their opinion as well as their success are points not to be disregarded; but in one point we all agree, and that is *thorough drainage*. Some of their reasons for opposing these bottomed borders we look upon as fallacies, such as the impossibility of the heat contained in the earth ascending, or of moisture getting up to supply the roots by means of capillary attraction in dry weather. We know of no substance recommended for bottoming borders that would prevent either of these desiderables from taking place. *Porosity*, not *consolidation*, is the greatest opponent to the passage of heat, either upwards or downwards. Moisture will even pass through flag-stones if in contact with a humid substance. But if we could (which we cannot) exclude moisture from rising, it would be all the better in the case of all tender plants growing in the open soil, as such moisture is always more promotive of growth than of

fruitfulness. The moisture that falls from the clouds loaded with air and fertilizing properties is, for such purposes, the best; and, when that is not sufficient, it becomes an easy matter to apply that which has been exposed to atmospheric influence. The great error committed in fruit-tree borders has arisen from the practice of treating a peach or a vine just as we would a carrot or a cabbage, or a mere forest-tree, where quickness of growth and luxuriance were the main objects aimed at. In their case, depth of soil, and even deeply stirring the subsoil, are of great importance, because not only is a free scope given to the roots, but in wet seasons they will not be flooded, and in dry seasons they will not be parched. In borders, say for vines treated in a similar manner, you will often obtain rods like good walking-sticks and leaves like parasols, but the fruit is not unfrequently small and badly coloured.

From vines in shallower borders, with wood and leaves half the size, you will obtain superior fruit. Why the difference? In the one case there was more growth than could be thoroughly matured, in the other the juices were all highly elaborated; in the one case the wood when it was soft and somewhat pithy, in the other it was like heart of oak. We do not like to see great luxuriance in our peach-trees, but we are all rather fond of strong wood in our vines, as the finer the shoots, and the larger the leaves, the finer we should expect the future crop to be, provided the elaborating of the juices of the plant were perfectly completed: without that the luxuriance is of no advantage. To secure that luxuriance, and yet at the same time to command the perfect ripening of the wood, the roots must be kept within atmospheric influence, and then by surface dressings and liquid manure you may command what strength of growth you require. Do not misunderstand us, however: the bottom of your border must be *sloping*, not *flat*; it must have a natural drain of open rubble all over it, communicating with a good drain in front. Without these adjuncts we advise you to leave bottoming alone. I have had to do with bottomed borders little better than receptacles of water and mud, by their being made flat, and without sufficient drainage. If you do not mean to do all this, then the best thing will be to follow the advice of the opponents of "bottoming," by making and contenting yourself with good drains. For general purposes, a depth of two feet of good turfy soil will be rather more than a fair average. For peaches less will do, and without manure. Vines should have an addition of lime rubbish, free-stone, &c., to keep the soil open. The best incorporated manure is rough broken bones. Provided the soil is open, and the drainage good, strength, by the help of manure water, can be obtained at any time.

We only meant to say a few words, but the matter would easily amplify into pages. One thing in particular let me caution you against, and you must think of it while building your walls: do not *sink*, but *raise*, your outside borders as much as possible above the surrounding level. Get as much fresh uncropped top-spit soil as you can, and, if not sufficient, reserve a part of the best of the natural soil of the place; but, in order to do this, do not sink a great gully-hole, as if you were going to make a large tank for the holding of water. Every spadeful of earth and clay you remove unnecessarily for this purpose is worse than labour lost. Make all but the best part of the natural soil (and that we should not care about mixing, if it can be done without) subservient to giving the bottom of your border the necessary slope; in it

form your drains, as deep as you please, and then upon this place your rubble and prepared soil. Thus, though you cannot obviate the necessity of wheeling in, you will avoid the greater labour of digging, picking, and wheeling out. "Ah! very nice indeed; but, then, Mr. Fish, see the additional expense I must be put to in raising my walls several courses of bricks higher, in order to enable you to raise this nicely sloping border; and then there is my neighbour, Mr. Fine-taste, who will criticise me unmercifully if I should have a brick above a certain height, so as to be seen at all from a certain window, and pronounce my house, about which you and I are taking counsel, as a great, gawky, staring thing." I reply: first, what is worth doing at all is worth doing well; we tried to do well in our younger days, but then we did not know as now how to do it. Secondly, the course we advise will be the cheapest in the end; nay, we question whether the raising of the additional brickwork would not be cheaper at first than removing such a quantity of stiff or gravelly soil. Thirdly, practice demonstrates its importance: doubters should have a trial of some of the tank-like borders some of us have to contrive to manage. Fourthly, if there is a really valid objection to raising the wall, you may yet do much by lessening the width of the house, when less height would be necessary, and the border might rise to the front wall-plate. And, fifthly, as to Mr. Fine-taste, yield your own judgment to no man; but unless your own taste (informed, of course), and your own good strong common sense, see reasons incontrovertible in what he urges, smile at his well-intentioned learned criticism, and tell him in turn that wherever utility and fitness for a given object are so plainly perceptible as to require no explanations, there the taste developed cannot be bad.

R. FISH.

THE KITCHEN-GARDEN.

CABBAGE PLANTS.—The earliest and best varieties should now be put out in succession for early spring use. The ground should be prepared by a liberal application of good manure, and well trenched; if ridged into sloping banks, as before recommended, so much the better: the ridges may be left as rough as possible, and the young plants which were sown at the proper season for spring cabbages may be planted at the intended distance on the sides of the ridges, and the intervals filled up with strong *colewort* plants, to be drawn out as they become ready for use throughout the winter.

CAULIFLOWERS.—Sow full crops of this vegetable, so that the requisite quantity of plants to stand the winter for spring planting may be secured.

WATERCRESS.—Those who are enabled to cultivate the watercress, should now, if a new bed is to be made, clear away all the rubbish from the spot selected, and replant. Where the watercress is already established, and has been well gathered from, a part of the bed should be well cleared out, saving all the strongest and best plants to replant again after all the weed, rubbish, and muddy refuse have been taken away. The beds should, if possible, be established where good fresh water is at all times running through them.

LETTUCES.—Prick out and transplant as fast as the seed bed requires thinning, taking care, these moist mild evenings, to place some baits of new brewers' grains, or new bran in small quantities, to entice the slugs together, so that they may be dealt with according to the garden laws. Our custom is

to run round the garden with a basket of fresh slaked lime to kill them, and the next morning we again go round with a spade and bucket, collecting all we can find, and turning them to account by adding them to the manure heap, for the land at some future time.

CELERY.—Continue to earth up gradually and carefully when the plants are quite dry, drawing up the outer leaves quite straight, and pressing the earth gently round them, to protect, as we have before advised, the heart of the celery from being smothered with earth.

ENDIVE.—Attend to the directions given last week under the head "celery and salads."

CUCUMBERS AND MELONS.—Those who have late cucumbers and melons in a healthy state should assist them a little by topping up and renewing the linings; or, if heated by tanks or hot water pipes, apply a little more heat; slight coverings at night with mats, &c., will also very materially assist them. Cucumbers of the best varieties for winter culture should now be sown. A plant or two of the *Sion House* or *Kenyon* varieties may be grown in any small house where heat is maintained for the pine apple, or stove, or orchideous plants; or in a cutting house; and if either trained up a rafter, or the end, or back wall of the house, a good succession of fruit may be obtained. These varieties also may be successfully cultivated through the winter in pits or frames, if trained on a trellis and near the glass.

RADISHES of various kinds should now be sown on warm borders.

MUSHROOM BEDS.—Collect materials for making the principal bearing mushroom beds as has been previously directed, and those beds which have been for some time in bearing should be slightly sprinkled with liquid manure, applied in a tepid state, and brewed from the dung of the cow, sheep, horse, or deer, without the addition of either, soot or lime.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 43.)

This is the time for making cuttings or taking slips of the chrysanthemum. These are very elegant plants indeed; the flowers, when fine, are beautiful both as to colour and shape; they are so feathery and graceful in their attitude, and soft and delicate in tint, that they are well worth some little care, and if possible, should be placed in our windows, as they are finer and last longer in bloom than when in the open ground. By taking cuttings or slips now, we shall obtain flowers earlier next season than by doing so in the spring, but then we must plant them in pots that they may be protected during the winter. The best sorts, of course, should be selected, and the cuttings taken from young shoots, five or six inches in length, and planted in good sized pots that will hold several of them as they need not to be planted separately. This should be done early in the month. The chrysanthemum is an invaluable autumn flower, both in the room and the border; it lasts so long, and is so lovely, and has also a pleasant perfume. The small red variety was the first introduced into this country, but it is now quite thrown into shade by the many finer and handsomer sorts we cultivate. It is often seen in cottage gardens, but seldom in those of the rich. Its native land is China, where it is highly valued and extolled, and so it is in Japan; but it was

only brought to England in the year 1795, although it is said to have been known here at a much earlier period, and then to have disappeared. There are more than fifty varieties cultivated in its own land; we have also a large variety of them of rich and various colours. The best annual chrysanthemum is said to be that called "tricolor," which has white, yellow, and purple flowers, and they look gay and brilliant when clustering together in the border. There is something very interesting to us in a Chinese flower: it comes from a land that must ever be pleasant to the heart of woman, as so closely connected with her special enjoyment, tea. In the poorest cottages that grateful beverage is clung to when little else can be obtained; and I think most of "my sisters" will agree with me in confessing that it is one of the last luxuries we should be willing to give up. A flower of China speaks to us of strange things; of an empire dark and idolatrous, yet so firm and resolute in its policy that for centuries it has been sitting solitary among the nations of the earth, unloved and almost unregarded. But for its own peculiar tree, China would be a place unknown, and unchanged amid the changes of this restless world. Now, however, it has pleased God to "lift up" its doors, "that the king of glory may come in." Even in that land, shut in by mountains and seas, and laws, the Gospel has at last been preached; and we may, as we watch the opening buds of our delicate chrysanthemum, rejoice to think that their dark, impenetrable country now hears the "voice of the charmer," and sees the "true light that lighteth every man that cometh into the world." Now the Gospel is "preached in all the world as a witness to all nations," are we preparing for "the end" which "shall then come?"

The fern certainly cannot be called a flower, but it is a very beautiful production of the soil, and is in peculiar luxuriance this summer. I have seen very delicate specimens in windows; I have read of the beauty of the choice ferneries that many gardeners possess; but I turn to nature's fernery, and nothing can exceed that. There are spots in the woodlands where the tall, quiet trees stand closely together, yet admitting air and sunshine for the growth of woodland plants; and there waves the fern in free and graceful luxuriance, in such rich masses that it seems almost as a moving sea of deep, dark verdure, and charms the eye with its elegant, feathery foliage. In some of the wild, picturesque, park-like spots, through which pathways often run, we meet with scenes that rival anything a garden can display—scenes of unspeakable beauty. Let all who possess highly cultivated gardens cherish and enjoy them; their various collections show the endless operations of God's creative power, ever wonderful and ever new; but let those who possess them not be satisfied with the exquisite things that spread themselves around; let them turn from the lovely fields and lanes, to the thickets and copses, to the beautiful dells that no one notices, where they will find such "ferneries," such little bright sunny glades, such groupings of wild shrubs, and such soft velvety turf, that they may return to their homes enchanted with their own wild gardens, where weeds do not worry them, or blights and frosts disappoint their highest expectations. I confess that, although I have become a scribbler on flowers, I never did visit a show garden in my life without weariness and distaste. I always wanted to go home, or to get out into the park among the trees and brambles, and I am by no means sure that I do not prefer a picturesque "cottage garden," with all its tangled hedges and unpretending prettinesses, to

that of the first nobleman in the land. Now, I am afraid, I have shocked some of my readers.

The China aster is an invaluable annual. It has such a variety of colour that it ornaments the garden more than any other plant, and goes blooming on so steadily and perseveringly that it should be sown in every bed and border. Even in my garden it does tolerably well, and though not very large looks bright and gay. This is also a Chinese plant; it is valued and highly cultivated in its native land, and is a larger and finer flower than with us. I have seen a small collection of Chinese flowers painted on rice paper, and brought direct from that country; the colouring was bright and the form of the flowers seemed pretty. We shall probably now receive many beautiful new plants from that hitherto unexplored region, and thereby have renewed cause to admire and adore the wonders and beauties of God's hand. The daisy now blooming at my feet is a wonder and a beauty, yet we need perpetual reminding, and a new and splendid specimen sometimes awakens a feeling that the simple daily beauties around us fail to excite.

I have seen China asters extremely fine in a cottage garden facing the south, the soil of which is light and dry. They are not usually raised by cottagers, but they greatly heighten the beauty of their simple gardens. There is always a fertility in cottage soil; flowers seem to do well there, in spite of trees, and shade, and damp, and everything that injures them in higher stations. They always bloom earlier and later, seem sweeter, and glow more brightly than in some more cultivated grounds, and appear to suffer less from blight and frost. There is a blessing on the labouring poor, if they would but feel it. "The poor and the stranger" were tenderly guarded by the statutes of God, and He guards them tenderly still. Whatever may be his rank and station, "Ho that dwelleth in the secret place of the most high" is "covered" with "the feathers" and "the wings" of God, and fenced round with mercy. At this particular time of trial let us all remember that such a man shall not fear "for the pestilence that walketh in darkness, nor for the destruction that wasteth at noon-day."

TO CORRESPONDENTS.

. Many letters must remain undrugged until next week.

BITTER CUCUMBERS (Hester S.).—You will see the cause of this and the remedy explained at p. 291.

PEAS SOAKED IN ALORA (A. A. Clericus).—Pour a quart of boiling water upon an ounce of alora till it is dissolved; let the liquor get cold, and soak the peas in it for 12 hours. Your other questions are answered at page 304.

TURF ON CHALKY SOIL (A. Blade).—There is no mode of keeping this green in the droughts of summer except by watering it plentifully, and at least once a week with liquid manure. The chalk downs, though clothed with the herbage most suitable to them, become brown in summer. You say you have constantly mowed and rolled your lawn, which is laid with turf from a down. You had the turf, therefore, most suitable to your soil, and the rolling was right, but if you mow much during the droughts of July and August you only increase the brownness. We should try giving liquid-manure liberally, even the ammoniacal liquor from gas-works much diluted. The richer the surface soil the better it resists drought. We suggest this to save you from the expense of relaying the turf.

ROSE LEAVES TURNED BROWN (T. J. Cross).—Dry weather and the want of moisture at the roots have done this. You had better leave them alone now, but next summer put mulch over the roots, and give water occasionally.

DALIA CUTTINGS (Hid).—Cuttings of the shoots had better be planted several together in one large pot. Insert them round the side of the pot. *Half-hollocks* are not annuals but biennials, and are best sown in June, the seedlings to be transplanted as soon as large enough to where they are to remain. For information relative to *fuchsia* and *geranium cuttings* see p. 14 of vol. I. and p. 147 of the present. Pray look to our indices. Your water-butt on the level of the ground in your garden may have a half-inch gutta percha tube fixed to it for the purpose of supplying your watering-pots. You will find it very awkward to water directly from the tube, and there is not fall from it sufficient to throw the water any distance.

GLADIOLUS (A. Curate).—We could make nothing of your flower. Flowers are not examinable if put fresh in a letter and stamped by the post; to be of use they must reach us as fresh and full as when gathered, and this can only be done by enclosing them in tin cases, surrounded with tissue paper slightly damped. The four stems in a gladiolus is a sign of nature. We are not aware of any other names than *Natalensis* and *Pottianensis* being applied to this gladiolus.

YOUNG GERANIUM CUTTINGS (Hid).—These now rooting cannot be kept in a cold, dark room over a kitchen through the winter, but try them; and also save the old plants in case you fail with the young ones.

ZALUTARIA CALIFORNICA (Hid).—This is quite hardy, and when done flowering plant it out of doors; the young shoots may die down from being tenderly treated, but the roots will push up young branches.

GLADIOLUS IN MOSS (Hid).—You say this promises well. We never saw a gladiolus growing in moss, but Mr. Benton tells us that all bulbs which lose their roots and dry annually may be flowered in moss easier than any other way, and with less injury to the bulbs.

STANDARD GERANIUMS (Hid).—These have often been made, and if properly managed they look well.

PLANTS EATEN BY TREES (G. W. P.).—All letters are destroyed as soon as answered. If we have not replied to any query, please to put it again; but we cannot advise as to arrangement of grounds; such advice can only be given after a personal acquaintance with them, and for this we have no time.

VINES IN POTS (T. W.).—An essay on these, probably, will appear in our pages very soon.

STANDARD CUCUMBERS (Rev. C. W. L.).—You will find directions for pruning these, with illustrations, at p. 123 of our first volume. Late potatoes may be safely stored under cover in burnt earth, in alternate layers. It is a very excellent material for the purpose.

LIQUID MANURE (E. J. H.).—As your tank receives all your house sewage, which we presume includes scapads and other weak watery mixtures, as well as the drainage from your stable and farm-yard, it cannot be very strong, unless your horses, &c., are numerous. If our assumptions are correct one gallon of the mixture will be sufficiently diluted by mixture with two gallons of water; but remember liquid manure had better be a little weaker than it might be, rather than in the slightest degree stronger than plants will bear.

GRAPES SMALL AND BAD (Chris).—We hardly know how your bunches and berries are so small, unless owing to the circumstance of the vines being so young, and, perhaps, the wood not being thoroughly ripened last autumn. As you say that the wood looks beautiful and short-jointed, you have no reason to be alarmed, as the scanty crop this season will be all in your favour for a better crop in succeeding years. Many good vines are ruined from taking a heavy crop from them at too early an age. Even next season you had better be moderate in the quantity you allow to remain. The chief thing now is to get the wood well ripened, and for effecting that object a small fire, with air, now will be more efficient than a large fire a month hence. There is nothing wrong in West St. Peter's grapes (see *Chasselas Musque*, West St. Peter's, Royal Muscadine, and Black Prince), but Macreary's early white we are not acquainted with. *Chasselas Musque* is a fine grape, a little apt to crack. West St. Peter's ripens late, hangs well during winter; but as your house acts as a repository during winter for a collection of plants, an earlier grape, such as the Hamburg, would suit you better, though if you force a little you may have them all cut before the plants are introduced. As you wish an increase to your list, we should advise a plant of the White Dutch Sweetwater to be placed at the warmest end of the house, as in such circumstances you will cut from it three weeks sooner than from any other; a couple of Black Hamburgs, and a Muscat of Alexandria. The latter sets well in such a house as yours, where forcing does not commence until March or April, and the grapes will hang along with the West St. Peter's even after you introduce a part of your winter plants.

MOVING PLANTS (T. Thomas).—The general principle that plants should be moved when dormant applies more to out-door than to indoor cultivation, though even there breaking through the supposed principle is frequently more advantageous than otherwise. Mr. Fish gives his recommendation of starting the *Geraniums* by gradually shifting (p. 214), upon a rule *binding as a principle*, namely, never to check the top and the roots of a plant at the same time, when you can attain your object by performing the operations alternately. The geranium grower knows well how to apply this important rule. He does not permit his plants to get so soft, then down, but allows the strength remaining in the old roots to push out fresh growth, and then he removes the old soil and part of the roots with it, knowing that in the circumstances in which he will place the plant the young growth will sooner cause a protrusion of fresh roots, and thus re-establish a relationship and corroborative action between the different parts, just as roots are sooner formed from a cutting where the leaves are maintained in a green healthy state than in a kindred cutting without leaves, or where from careless management they have been allowed to decay.

BERRIES AT THIS SUBDURING ITS FRUIT (Hid).—Try a shadier place for the *Berberis dulcis* (Sweet Barberry). We have not had the pleasure of tasting its fruit, which is black, about the size of a blackberry, and must, as well as the flowers, look very pretty from its long footstalks or peduncles. We recollect seeing some small bushes of it some years ago at the Horticultural Garden, but this did not bear fruit. We have heard there is also a deciduous variety. There is a variety of the *B. vulgaris* (common Barberry), called *Dulce*, with red berries, but we never discovered anything sweet about them.

BRIANZOLLO FIG (Hid).—We do not know the Brianzollo fig; it is peculiar to the Piedmont territory, and between the districts of the *Pasdin*. The Neri fig is pale greenish-yellow in its skin, small in size, less than the Marselles, delicious in flavour, and thrives best in a low temperature under glass.

SMELL OF URINE (Z. Z.).—Mixing sulphuric acid with it from

time to time, as long as effluence, or bubbling, is caused by the addition, will probably be the best mode of subduing the smell of that which you require for liquid manure.

CACTUS CUTTINGS (*W. Savage*).—Having cut up a large cactus, with stems of 24 inches length, and of two years' growth, you purpose "to try them in small pots—only five or six inches diameter—in very sandy compost, placing them close to the glass in your conservatory (giving one watering only now), and training up to the sash frame or ribs of your roof, there to remain and bloom." They will answer very well in this way, and they will require no shade, except while in bloom.

GESNERA ZEBRINA (*Ibid.*).—This now coming into bloom will require moderate waterings till the bloom is over; after that let the plant die gradually by withholding water, then keep the pot in a dry warm place till February, or early in March, when the soil must be shaken out, and the seedlings may be divided into small pieces for propagation; but we shall give you the whole treatment of the plant before that time.

SCARLET GERANIUM SOIL (*P. J. H. S.*).—Good garden soil, not too rich or poor, will best suit the scarlet geraniums. The best article on their treatment is that at p. 78, by Mr. Beaton. Mr. Conway's paper was published by the Horticultural Society. It does not differ in principle from ours.

AUTUMN-FLOWERING GREENHOUSE BULBS (*Ibid.*).—Hyacinths, early tulips, narcissus, Persian iris, &c., are the best bulbs for your purpose. We shall treat of them shortly. After the gladioli and Guernsey lily, there are few greenhouse bulbs that flower late in the autumn.

CHANGING THE HYDRANGEA'S COLOUR (*E. B. W.*).—Not "red sand" but red sand is meant at page 243, line 10 from bottom of col. 1, that being often used impregnated with iron than white sand. You must not expect a bluish hydrangea from an autumn cutting taken from a pink flowering plant.

PLANTS IN LONDON (*A Londoner*).—You will find a list of plants that will suit your garden at p. 20 of this volume. If you require them for windows we must ask of you to consult the numerous references in the index of our first volume. If we received your first note, signed *Chizien*, it was answered at p. 203.

LONDON EARLY-ROD POTATO (*E. B. W.*).—We think you might obtain this of any of the principal potato dealers in Covent-garden market.

YUCCA GLORIOSA (*A Country Curate*).—This, if grown in deep loamy soil with a dry bottom, generally flowers every year; as yours does not flower, we would advise you to water it liberally from the end of May to the end of August, and you may use strong liquid manure occasionally. We do not think it necessary to stake it, unless it is planted in shallow soil, and the soil is light. Instead of staking try two strong pegs driven into the ground, their tops nearly level with it, and opposite each other, at the distance of two feet from the plant; a piece of stout tarred cord tied to each peg, and fastened to the stem half way up, will keep it secure, and be less unsightly than a strong stake.

SWEET Brier SUCKERS (*S. S.*).—These, which spring from plants in your hedgerow, should be cut down to within about six inches of the ground; they will throw out laterals and thicken the bottom of your fence. *Ducks* will not eat water lily leaves.

TOBACCO CUTTINGS (*July Gardener*).—Sow the seed in a light, rich, warm border in April; plant out the seedlings when they have four leaves, in rows three feet apart, and the same distance from each other. Let the soil be very rich and light. When the plants are five inches high, earth them up. Nip off the top of the flower-stalk as soon as it appears, and remove all the buds from the axils; you mention—all the sap is required for these. *Rose cuttings* may be planted now; see pp. 14, 67, 178, and 210, of our first volume. *Garden refuse*, such as weeds, clippings of hedges, dead flowers, &c., when thoroughly decayed, will answer well as leaf-mould. The *pitfall* is the maternal part of the flower; it grows up usually in its very centre, and is that longest threadlike body so conspicuous in the fuchsia. Your other questions will be answered next week.

PIT BUILDING (*P. W.*).—If you will turn to p. 160 and other references given in the index of our first volume, you will find full directions by Mr. Beaton.

TREATISE ON BEES (*J. B. Storey*).—Payne's "Bee-keeper's Guide," and Taylor's "Bee-keeper's Manual," are both excellent. The first is best for cottage practice. When your Horticultural Society is actually established please to apply for the volume again. We shall be much obliged to you to send the letter by you mention. As your soil is not light, keep your *potatoes* for planting stored under cover between layers of earth until March, and then plant.

MOVING PROVINCE ROSES (*C. S.*, *Mile End Road*).—Do not move them until November, and in the meantime render your adhesive soil more open by digging into and thoroughly raising with the border where you intend planting them a thick coating of coal ashes and bricklayers' rubbish.

AXILLARY SHOOTS OF PEACHES, &c. (*D. T. H.*).—Your peaches, nectarines, and plums, planted last autumn, of which you have properly cut back and stopped, the leading shoots, have from the latter thrown out strong axillary shoots; and you ask if these should be also pinched or stopped?—Pinch by all means all axillary shoots on the upper, or superior, parts of the tree, and continue to do so through the autumn. This is the true way to equalize the strength of the tree; by leaving the lower, or weaker, parts growing most of the sap that would have been appropriated by the others is decayed into the weaker portions, which you will find next spring after pruning back in the rest state will push with astonishing vigor. Winter pruning alone can never effect this.

TENAZOSES (*See S. S.*).—Having left these too long unpotted they have produced long narrow leaves which do not arch over the pots, and they have no appearance of flowering. We fear they are hopeless; still, if you keep them over the winter, they may throw up flower-stalks next season, but we never saw them kept that way. They will not bloom this year.

CLIMBERS FOR TRELLIS (*Z. Z.*).—Your trellis is for shutting out a view of the kitchen-garden from your drawing room windows.—You may plant on both sides of the trellis, and intermix the climbers on each side, as they grow; or you may plant climbing roses on one side and the jasmines on the other. At such a distance from the windows we would only plant the common white sweet-scented climber. Plant the crimson *Boursault* in the middle; it blooms early and late, and is one of the best to had others on high up. On each side plant *Felicite perpetuelle* and *Princess Louise*; these will only flower early, but then they are half evergreen. In the clumps we would plant pillar roses, for which, said the best *Verpeticals*, see our lists in former numbers.

NAME OF CATERPILLAR (*R. F. W.*).—Your caterpillar, about 1½ inch long, feeding on plum tree leaves and on the Prince of Wales Feather, with body black, and two rows of red spots along the sides, each spot bearing a bulb of bristle-like hair, with four strong tufts of hair on centre of back, a long tuft of hair at the tail, and two tufts of hair (or feelers) one on each side of the mouth, is the larva of the *Vaporar* moth, *Orgyia antiqua*.

WET UNDERMINE GARDEN (*T. M. W.*).—As you cannot drain your soil, we recommend you to form it into bays, beds, by digging out wide deep trenches and throwing the earth from them on to the beds on each side. This will partially drain it, and aid you more effectively than anything to get rid of the Marsh Horsetail (*Equisetum palustre*) which infests it. Chalk or lime without an arrangement will not kill that bog plant, but they may be put on the bays, as well as any earth, coal ashes, and bricklayers' rubbish, with great advantage. We are aware that *Shantals* can be raised from seed, but gardeners generally raise them from the cloves or offsets of the bulbs.

SAVING SEED (*P. S.*).—There is no "peculiar talent required in saving the seeds of plants." All that you have to do is to select such plants for seed-bearing as are "truest to stock," that is, which have the most desirable properties for which they are cultivated. Never save seed from a lettuce or cabbage which runs soon to seed, for "like produces like" in the vegetable as in the animal kingdom, and the seedlings would be liable to inherit the bad habit. Tell the party you name to advertise with us; he will find its consequences, but we cannot recommend him to the prejudice of others. Your *hollyhock* seedlings, though only two feet high this year, will most probably be double that height next year. *Athea* never is the *hollyhock's* botanical name. Your seedling *potatoes* will produce small tubers this year, and these planted out at the usual season will yield more more serviceable tubers next year. We do not think anything favourably of the pamphlet you allude to.

SOVER KNOT (*W. C. G.*).—Two hundred pounds by weight of cabbages, as stated at p. 204, is a large weight. Unless a cabbage is a large bulk it will not ferment. The firm-hearted cabbages will do for the purpose, but we cannot say whether the red cabbage will. We shall be obliged by your sending us some of the pumpkin seed. If you cannot store your *potatoes* under cover, you must do so in barrels, or tubs, and we would put a few layers of straw or hay over them, and rain, frost, and snow will inconvenience you. On to account keep the potatoes together, but put them in layers with earth, sand or ashes alternating. In heaps they heat, which we know is a cause of disease.

EARTH NUT (*Ibid.*).—This is the *Bunium bulbocastanum*, and *B. dendratum* of some botanists. It is known in various parts of England by other names, such as kipper nut, hawk nut, jar nut, chestnut, and ground nut. Whether boiled or roasted, its flavour is quite as pleasant as that of the chestnut roasted. If grown in a light moist soil, and planted shallow so that the roots might be near the surface at about four inches from the surface, we think they might be grown more than an inch in diameter, and would be an addition to our tables far superior to the roots of the tuberous-rooted sorrel (*Oxalis Deppei*).

HEATING SMALL PIT (*G. C.*).—We cannot give you any information how to effect this on the Pulman system, and we warn you to use a small *Arnot's* stove in preference. We know of no objection to your plunging your pots in the earth of an old cucumber bed. Your other questions shall be answered next week.

BEES IN THE MOON (*See S. S.*).—In our calendars of work to be done in each department, *b*, means beginning of the month, and *e*, the end of the month.

YARROW AND CLOWFOOT (*J. M. L.*).—We know of no other mode of destroying these weeds than by cutting them out of your garden plot as fast as they appear, and putting salt upon the wounded stumps.

LIVID MANURE (*Osmundensis*).—The osmunds from your house can be nothing nearly sufficient to dilute the chamber ships of so many scholars. It may well, therefore, have turned the elderly plants here and there into stumps. Under the circumstances there is no need to pour it over the leaves. One gallon to five of water will be quite strong enough. You may apply it to *rhubarb* and *asparagus* from the time that they appear above ground until their leaves begin to become yellow.

FUCHSIA (*See S. S.*).—*See S. S.*—It is quite impossible for me to form a judgment upon the merits of any flower from a single withered specimen. The habit of the fuchsia plant, also, has much to do in deciding upon its merits.

POLYANTHUS (*R. Reynolds*).—This is not a species but a very permanent variety of the common pansy, *Primula vulgaris*. Many very eminent botanists consider the primrose, oxlip, cowslip, and polyanthus varieties of one species.

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WEEKLY CALENDAR.

M D	W D	SEPTEMBER 20—26, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
20	TH	Chiffchaff's song ceases.	Meadow Saffron.	44 a. 5	2 a. 6	8 1	4	6 38	263
21	F	St. MATTHEW. Sun's dec. 0° 39' N.	Ciliated Passion-flower.	46	0	8 31	5	6 59	264
22	S	Lime-leaves fall.	Tree Boletus.	48	v	9 5	6	7 20	265
23	SUN	16 S. APT. TRIN. Herald moth seen.	Bushy Starwort.	49	55	9 44	7	7 40	266
24	M	Beech-nuts fall.	Dung Fungus.	51	53	10 30	8	8 1	267
25	TU	Ash-leaves lemon coloured.	Ox Boletus.	53	51	11 20	9	8 21	268
26	W	St. Cyprian. Ivy flowers.	Gigantic Golden Rod.	54	48	morn.	10	8 42	269

St. MATTHEW, the evangelist and apostle, was originally called Levi, and, although a Jew, was employed by the Romans as one of their publicans or tax-gatherers. Whilst so employed he was summoned by our Saviour to be one of his disciples, and appears to have obeyed the call readily (Matt. ix. 9, x. 3; Mark ii. 14; Luke v. 27). He probably received the name of Matthew—which means a "gift from God"—at the time of his conversion, as Simon's name was similarly changed to Peter, and Saul's to Paul. All that is certainly known of him after the crucifixion is that he remained at Jerusalem (Acts i. 13), for it is variously stated that he preached the gospel in Ethiopia and Parthia; and whilst some historians say he was martyred, yet others mention him as one of the apostles who escaped martyrdom. It is most generally believed that St. Matthew wrote his Gospel in Hebrew before he travelled from Judea, about A.D. 38; and that it was translated into Greek for more general use in the Christian Church some 25 years after.

THASCIUS CECILIUS CYRILLUS, a noted writer of the Christian Church, was born at Carthage, in Africa, early in the third century. Born of heathen parents, he continued an idolater until within twelve years of his death, when he was converted to Christianity by one Cæcilius, a priest, whose name, when baptized, he adopted. This occurred A.D. 246. Eventually, Cyrian became bishop of Carthage,

and suffered martyrdom there in the year 256. That he was pious and a firm believer there can be no doubt, but he was very visionary. His writings have been frequently published and translated.

PHENOMENA OF THE SEASON.—One of the peculiar natural events of August and September is the appearance of numerous broods of caterpillars. Upon our gooseberries and red currants those of the Gooseberry Saw-fly (*Teuthredo Grossularie*) have this year been particularly abundant in Hampshire. A drawing of the Saw-fly itself is given at p. 31 of this volume, and the modes of getting rid of the pest are detailed at p. 261 of our first volume. We have employed children this year to pick them from our trees, and have thus subdued them at the small expense of one penny per hundred. Our cabbage tribes, but especially young broccoli plants, have been as powerfully invaded by the caterpillars of the Cabbage butterflies (*Pontia* or *Pieris*), and we conquered their successive hordes in a similar mode. Let no one flatter himself that he has triumphed by merely once clearing his plants or bushes of these invaders, for the eggs do not hatch all at one time, therefore the gardener must be also successively vigilant. On libertas we have had abundance of the caterpillars—green and black, striped with yellow bands—of the Bull-tip moth (*Hemato-phora bucephala*). This description only applies to them when full grown, and about two inches long. When first hatched they are found small, and thirty or forty together, as described at p. 260. It is this alteration in size and colour which render caterpillars so difficult to identify by comparing them with drawings. They change their skin several times, and as often is there a change in their colour. This is remarkably striking in the caterpillar of the Pine moth, just before changing into a chrysalis, which caterpillar has been very abundant during the last and present month upon the poplar. These alterations of colour seem to be, in many instances, a wise provision for their preservation, for they pursue in this respect the change of colour in the plants upon which they feed, and thus rendering them less easily detectable by their enemies.

SEPT.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
20	Fine.	Showery.	Fine.	Fine.	Fine.	Fine.	Showery.	Fine.
Highest & lowest temp.	71°—60°	63°—40°	81°—47°	66°—40°	62°—52°	70°—53°	64°—35°	77°—37°
21	Fine.	Cloudy.	Fine.	Fine.	Rain.	Cloudy.	Rain.	Fine.
	70°—56°	55°—35°	75°—56°	64°—47°	65°—49°	71°—55°	62°—63°	75°—44°
22	Showery.	Cloudy.	Fine.	Fine.	Fine.	Cloudy.	Fine.	Fine.
	70°—53°	60°—42°	71°—48°	61°—49°	64°—42°	70°—56°	70°—47°	75°—52°
23	Rain.	Rain.	Fine.	Fine.	Cloudy.	Rain.	Fine.	Rain.
	60°—49°	56°—47°	62°—45°	64°—49°	64°—39°	71°—53°	67°—47°	66°—51°
24	Rain.	Rain.	Fine.	Fine.	Fine.	Cloudy.	Cloudy.	Fine.
	64°—50°	50°—52°	66°—45°	65°—39°	62°—37°	67°—53°	65°—34°	67°—53°
25	Showery.	Stormy.	Cloudy.	Fine.	Cloudy.	Fine.	Fine.	Fine.
	65°—50°	62°—51°	65°—41°	65°—35°	62°—33°	60°—48°	65°—51°	69°—55°
26	Showery.	Showery.	Fine.	Fine.	Fine.	Showery.	Fine.	Rain.
	64°—50°	62°—49°	60°—38°	72°—36°	65°—52°	62°—39°	62°—39°	62°—54°

INSECTS.—During this month may be found on various plants the caterpillars of the Great Yellow-under-wing moth, *Triphana prunella* of some entomologists, and the *Noctua* and *Phalaena prunella* of others. These caterpillars when full grown are greenish brown, with two rows of black dots down the back. It does much injury occasionally to our vegetables, especially young plants of the brassica or cabbage tribe, eating through their stems just below the surface of the soil. The caterpillars enter the chrysalis state in October, and remain until June and July, when they give birth to the moth. This is usually about 24 inches across the fore-wings when fully expanded. These wings are variously coloured from buff to dark brown, veined and variously marked with the same colours, and having a large ear-shaped spot of rather lighter hue, as shown in the accompanying drawing. The hind or under-wings are bright orange, with a black band near the outer edge. The head and body, like the fore-wings, vary in colour; being sometimes buff, and at other times dark brown.



It has been suggested to us that we might do very acceptable service to our readers if we were, in popular language, with familiar explanations and illustrations, to explain "the why and the wherefore" of the various operations of gardening. This suggestion being coincident with our own opinion, we shall in a series of editorials place before our readers THE PRINCIPLES OF GARDENING. These will be remodelled chiefly from a volume we published upon the same subject some years since, but rendered still more familiar and easy of comprehension. But before doing so we will explain a little more fully what is our purpose and what our readers may expect.

Gardening, or horticulture, has for its objects the production of the fruits, flowers, and culinary vegetables of any climate, in any habitable place, in the greatest perfection, and at the least possible expense.

Like all other human occupations, gardening is divisible into the science which teaches the principles and circumstances on which the attainment of the desired objects is founded, and the art or practical skill which enables the practitioner to secure those circumstances and carry out those principles.

It is to the first of these departments of knowledge that these editorials will be devoted: their prime

subject being the guidance and explanations afforded to the gardener in the practice of his art by chemistry, vegetable physiology, and other sciences.

If any one asks what those sciences have done for gardening, we point to the discoveries of the late Mr. Knight. The opinion of that most scienced horticulturist is also recorded in a letter from him now in our possession,—the words should be engraved over the gateway of every garden: "PHYSIOLOGICAL KNOWLEDGE CAN ALONE NOW DIRECT THE GARDENER TO IMPROVEMENT, FOR HE POSSESSES ALL THAT MERE PRACTICE IS LIKELY TO GIVE." Science, it is true, can never supersede the necessity for a practical acquaintance with the operations of the spade, the knife, and the hoe, but it is their best guide—a pilot needed even by the most experienced; and let it be remembered that to botanists we owe nearly the whole of our flowers, as well as our knowledge of their habits; and that to information drawn from their discoveries we are indebted for the majority of our numerous varieties of fruits and culinary vegetables, as well as for a knowledge of their anatomy and functions. Botany also affords the best nomenclature for our plants; and thus to it we are indebted for an enlightened practice, and a language universally intelligible. But for another science, chemistry, the true nature of soils, of manures, of the food and functions of plants, would be unknown to us, and many of our simplest garden operations would be inexplicable.

The growth of horticultural science has been slow; for, although its dawn was in the Elizabethan age, yet it never afforded any distinct light to gardening until the beginning of the present century.

It is undoubtedly true that in much earlier ages there were surmises born of inquiring minds that are startlingly in accordance with the results afforded by modern vegetable chemistry and physiology; but they were no more than surmises—fortunate guesses that, among many totally erroneous, happened to savour of truth. Thus, Pythagoras forbade the use of beans as food, because he thought that they and human flesh were created from the same substances, and modern research has rendered it certain that that pulse has among its constituents more animo-vegetable matter than most other seeds. Empedocles maintained that plants are sexual; that they possess life and sensation; and that he remembered when he was a plant himself, previously to being Empedocles. Theophrastus and Pliny wrote more voluminously on plants, but not with mere knowledge of their physiology; and little or no improved progress is really visible until the sixteenth century was well advanced; for this branch of science was no bright exception from the darkness enveloping all human knowledge during the middle ages, and it was not until that period in which Bacon lived that the human mind threw off the trammels of the school-men, and, instead of arguing as to what *must be*, proceeded

to examine and search out what *is*. The Reformation, the spirit of the age, was then not confined to religion. By delivering the human mind from thralldom, and teaching man to search all things, but to retain only that which is good because true, it gave an impetus to improvement, which no tyrant opposition has ever since been enabled to check.

Such men as Bacon, Peiresc, Evelyn, Grew, and Malpighi arose. Bacon was the first to teach aloud that man can discover truth in no way but by observing and imitating the operations of nature; that truth is born of fact, not of speculation; and that systems of knowledge are to be founded not upon ancient authority, not upon metaphysical theories, but upon experiments and observations in the world around us. Peiresc was a munificent man of letters, whose house, whose advice, and whose purse were opened to the students of every art and science. His library was stored with the literature of every age, and his garden with exotics from every clime, from whence he delighted to spread them over Europe. Grew in England, and Malpighi in Italy, devoted themselves to the anatomical examination of plants, and these were followed by Linneus, Gærtner, and others, who, trusting only to the dissecting knife and the microscope, soon precipitated into ruins all the fanciful fabrics of the Aristotelians, or guessers at truth. They were the founders of that science of vegetable physiology, which, enlarged and carried into practice by the late Mr. Knight and his followers, has advanced horticulture to a degree of improvement undreamed of by their immediate predecessors, Heresbach, when he informed the world that, if the powder of rams' horns is sown, and well watered, "it will come to be good asparagus."

The researches of Hales, upon the circulatory power of the sap-vessels; of Bonnet, upon the functions of the leaves; and of Du Hamel, Priestley, Ingenhousz, Sennebie, Saussure, and others, upon the action of light, and the nature of the gases developed during the respiration of plants; imparted still more useful knowledge to the gardener, and rendered his art still less empirical. The same philosophers directed their attention also to the food of plants imbibed by their roots, and to the examination of their various secretions; but here they were joined by another band of nature's students, and no one conversant with the philosophy of plant-culture but will remember the debt he owes to Vauquelin, Lavoisier, Johns, Davy, Lindley, and Liebig.

We shall endeavour to concentrate and arrange the results of the researches of the above-named disciples of nature, adding such rays, derived from lesser lights, as aid to render the whole more luminous, and such links of experiments and observations from similar sources as make the work more connected than it would be without their aid.

A few gardeners may still exist who venture to

think science useless—as there once existed a devotee of fashion who wondered why it was not always candle-light; but the greater majority of gardeners are now men of science, endeavouring thoroughly to understand the reason of every practice, and the supposed cause of each effect. To those differing from them, we might name, if it would not be invidious, nearly all the most successful of our modern gardeners. To a man, these are well acquainted with gardening's relative sciences. We forbear from mentioning names, but we may remind our readers, without fearing to offend, of two departed scientific cultivators, M. Lavoisier, and our fellow-countryman, Mr. Knight. Lavoisier cultivated his grounds in La Vendée on scientific principles, and in a few years the annual produce of those grounds doubled that from equal spaces of his neighbours' soil. Mr. Knight has scarcely left a department of our horticulture unimproved by that combination of scientific with practical knowledge which he, perhaps, more than any man, had united in his own mind.

It behoves every gardener to follow in their steps, for though those great men who have gone before have done much for gardening, yet still more remains to be accomplished. We yet, on most points, do, and must ever, see through a glass darkly; but that is no reason why any one should withhold from the effort to elicit some light towards diminishing the obscurity—and we may all, without fear of mispending our labour, continue to act as if botany could still furnish something new, and as if chemistry and physiology had still some secret to reveal to the inquirer.

THE FRUIT-GARDEN.

ROOT PRUNING.—Amongst the various means taken to promote early or abundant fruitfulness in our various fruit-bearing trees and shrubs, root pruning holds a most prominent position. It may seem somewhat early to many of our readers to discuss this subject, but it is not so in reality; for, as a general maxim, to those who are not thoroughly versed in fruit culture, we advise that this operation be performed towards the middle of October. More than one reason induces us to recommend this course. In the first place, it is frequently of necessity an operation of a very severe character; the most experienced root pruner cannot calculate to a nicety how many roots to remove; and, in the act of cutting or rather in excavating the soil prior to the operation, the spade is apt to take extra liberties with the roots, for could we skeletonize the fibres by water or other means, without using a spade, the operation would be of a much more certain character. However, since this cannot be accomplished, we must make the best of adverse circumstances, or, rather, we must use extra precaution to insure success. Well, then, at the best it is a severe measure, and if performed in spring is very likely, provided extreme drought or long-continued bright sunshine should occur, to give rise to a necessity for extra appliances in the shape of mulching, watering, or shading; for, like bleeding in the animal system, it is possible to reduce the habit so low as that things may begin to assume a serious aspect, and excite a dread that the remedy may prove worse than the disease. Root pruning performed in October will be the cause of a host of small fibres being thrown out between that period and the spring, which will of themselves prove an immunity from the danger of sudden and great extremes.

Another and, with us, a strong reason exists in ad-

dition for October root pruning. October, we conceive, is the most leisure month we have, that is to say, the most leisure month in which operations involving extra labour can be carried out without hindrance, for there is little danger of frost setting in so severely as to stay the operation, and there is still some length of day for a tolerable amount of labour to be performed. Another and somewhat important consideration may be added:—cutting the roots of trees of succulent growth whilst the leaf still remains on has a tendency to reduce that succulence, or, in other words, to promote the ripening or solidification of the wood. We are aware that some persons of tender nerves will take fright at the idea of so checking a tree by root cutting as that the leaves shall flag, and even the young points shrivel slightly. These events need cause no alarm, however; we have often performed the operation, and it has been followed by these dreaded circumstances, but no harm has occurred. It is one thing for the points to shrivel through a sudden check, and another for them to decay through positive disease. We remember seeing, about sixteen years since, some extraordinary young peach-trees at the Earl of Wilton's seat, Heaton Park, near Manchester. Poor Taylor, an old friend of ours, was the gardener, and he had made what was then termed a first-rate border, that is to say, a border some four feet in depth, composed of powerful adhesive loams, combined with no small amount of manure. The surface of the border was but little, if at all, above the ordinary ground level; and the climate of Manchester is so notorious for producing umbrellas, that it forcibly reminds us of a joke we have seen in some Joe Miller, to the effect that a southron who had all of a sudden set his foot on "hieland grun," somewhere not far from Johnny Groat's, when, finding Scotch mists more prevalent than convenient, he accosted a native in these words: "My good fellow, does it always rain here?" The answer was prompt and to the point: "Na! it doesna' aye rain, it sometimes snaws." Such, with a slight diminution, then, is the climate of old Mancunium, now called Manchester. Well, these peaches had in the month of June (flattering themselves they had a Persian summer in prospect) shot forth into twigs huge as basket rods—shoots of some two yards in length and proportionately stout; these in their turn also subdivided into a host of long-jointed laterals. Such had been their progress when we saw them in the end of October; nearly all their points were then turning black and shrivelling, being gorged with un-elaborated sap, tending, of course, to gangrenous disease. The gardener said that they were every season the same (and no wonder!), and blamed the climate of Manchester, which he termed "the worst in Britain."

Now, if the ripening process in fruit-trees consists in the removal by a perspiratory process, through the agency of heat and light, of the superfluous moisture, which, having yielded up its small amount of organizable material, is no longer of any service to the system, and if such removal is retarded or arrested by a bad climate or season, why place trees of such susceptible character in the midst of an unlimited supply of food?

Last year a reverend gentleman applied to us to examine a lot of peach and nectarine-trees, which were growing most luxuriantly, but not flowering. Happening to be out at the moment we called, we found he had left us full powers to do what we liked with them. A trench was opened within three feet of their stems, parallel with the wall, and every root

extending beyond such line cut entirely away, and the trench directed to be left open until the drought of May or June penetrated the volume of soil. The severity of the process would have alarmed many persons, but it turned out that it was not half severe enough, for the reverend gentleman stated the other day that the trees were as strong as ever. Now, the soil in which they were planted was a very unctuous and adhesive loam, from a rich old pasture which had not been ploughed, perhaps, within the memory of man; and, although we believe there was not a particle of manure added, yet such results followed. Now, there is no radical cure for such an evil but to take the trees up and replant them on the surface, mixing some thirty per cent. of the ordinary soil of the locality with the too fertile mass. The ordinary soil in this instance is a loose, shingly, dark, moorish earth, as poor as the other is rich. This will be root cutting, and more: the plants will receive a check in the fibres which remain on them, and which if not carried to too great an extreme will prove of imminent service to them. Processes like these, then, we recommend to be carried out if possible in October, for the reasons before stated, and as furthering in some degree the ripening process, by encouraging a much greater amount of perspiration for a few weeks.

We will, in a subsequent paper, give the details of root pruning, and show how to carry it out with trees under various circumstances, and also what their subsequent treatment ought to be, for this is no trifling affair. In doing so, we must break the subject into certain divisions, in order to render it perfectly explicit; much remains to be said on this head. We would, however, in the meantime, beg of our readers—the thinking portion—to study the question of the *ripening of the wood* in fruit-trees, as well as the art of acclimatisation, which is, of course, intimately blended with it. It must be borne in mind during the consideration of these questions, that most of our superior fruits are natives of hotter and brighter climes than our own, and that the seasons as they run in Britain are totally inadequate to perfect the wood of the peach and nectarine, as well as some other fruits, unless aided by some means. The power of resisting cold during the winter is totally dependent on this question: this is too little thought of. My friend Taylor's peaches, before quoted, would, as he told me, die back a considerable length every winter. We are informed, on undoubted authority, that the solidification of the wood of fruit-trees in their native climes is carried to an extent, through the agency of heat and light, which few English cultivators can imagine. Our spongy peach-wood becomes as hard as the oak, and even the vine is described as snapping like a dry stick, although so elastic in Britain.

The theory of the solidification or ripening of the wood is very interesting. The superfluous fluids, before alluded to, are expelled or evaporated beneath the conjoint influences of heat and light, facilitated, of course, by a free circulation of air. Starch, resin, or gum, as the case may be, with other concentrated or solidified secretions, are thus formed by the vital action, aided, it appears, by carbonaceous matter from the atmosphere. Thus, what is termed assimilation is carried out, and this, in plainer terms, we gardeners are in the habit of lumping under the general and technical phraseology, "*ripening of the wood*."

We will shortly offer advice in a variety of ways as to the carrying out this important process, accord-

ing to the varying circumstances and condition of fruit-trees.

R. ERRINGTON.

THE FLOWER-GARDEN.

EVERGREENS TRANSPLANTING.—This is the best season of all the year for transplanting both large and small evergreen shrubs. It is surprising what large ones may be removed with perfect success if proper means and precautions are used. Supposing it is determined to transplant a large holly or laurel, the requisites for the purpose are *cords* to tie up the branches, and a *carriage* of some kind to remove it to its destination. The best kind we have ever seen or used is a platform, with a long handle, fastened to a pair of low broad wheels; this platform should be raised above the wheels, so as to allow the roots and ball of earth to be clear from them. Every part of this machine ought to be very strong, as it frequently happens that the weight of the tree and ball of earth breaks down a weak, ill-made carriage, and is the cause of breaking the limbs not only of the tree but even of the operator; to prevent such calamities it is far better to go to the expense of a strong effective instrument. Good steel *spades* are also requisite, and they ought also to be strongly made. Where there are a considerable number to transplant, it is advisable to have spades made on purpose; the blade or plate of the spade should be narrower than ordinary, and perfectly straight; the socket or strap fastening it to the handle should be deeper, so as to reach within six inches of its top; and to the handle it should be rivetted very firmly with at least four rivets. The top of the spade should be of the kind denominated box-handled, to distinguish it from the cross-handled spade; these box-handles are much more expensive than the other, as they have to be cut out of the solid wood, but they are much better to work with, and consequently almost always preferred. The next articles necessary are a good *pick-axe* and a *shovel*. Then have ready some strong *rope* and a *mat* or two; these are to tie round the ball of earth to keep it from breaking.

All these being ready, you may proceed with a right good will to prepare the tree for removal. Commence digging a trench two spits wide, at a sufficient distance from the tree to leave a moderate-sized ball to it; have your spades very sharp, so as to cut off any roots with a clean cut. Dig down to a sufficient depth, and then with the pick-axe commence working off the soil under the ball, throwing out the loose earth as you go on with the shovel; proceed thus till the ball is quite hollow underneath, then wrap the mats round it and tie it firmly with the rope: it is now ready for the truck or carriage. Make with the spade a road for it to come close to the ball; if the tree or shrub is high, set the handle of the truck up against it, and lash them firmly together; the carriage will then act as a powerful lever, and the tree may be pulled down to a horizontal position. The hole where it is to be planted ought to be made considerably wider than the ball, but very little deeper. We consider it a grand mistake to plant any kind of tree, whether evergreen or deciduous, large or small, much deeper than it grew originally previously to its removal. Having made the hole of the proper depth, stir up the bottom, and throw in a few spadefuls of good earth; pour upon this some water, mixing the earth and it together till it becomes a thick puddle, about two or three inches deep. Bring the tree gently to the side of the prepared hole, and lower it carefully into it, setting it upright; unloose the cords that fastened

it to the truck, and remove it away from the ball, as well as the rope and mats; then commence filling in the soil, breaking it well previously. Do not put in too much at once, and mix it with water, stirring them together. Proceed thus, layer upon layer, till the hole is full to the brim; place some stakes sloping to the tree, and tie them to it, protecting the stem with either a piece of matting or some broad strips of coarse canvass, and tie the shrub to the stakes with strong tarred twine, which lasts longer than common cord; then give the tree a good syringing, repeating it occasionally. If all these means are used, and precautions taken, the tree or shrub is almost sure to grow.

Smaller trees or shrubs may be moved with less apparatus, but the same care and attention, in a proper degree, are necessary to ensure success. Two or three persons may move a moderate-sized tree with a simple pole tied to the bole of the tree, close to the ball; the men can then take hold of the pole at each end, putting their arms under it, and carrying it away to its intended site, the hole having been prepared as just directed.

By transplanting these trees or shrubs thus early their growth is almost insured. They will, during the warm autumnal months, put out abundance of young roots, and be gathering up from the moist soil a reservoir of sap, so that in the spring the buds will be in vigour to make leaves and growth next year very strongly.

PROPAGATING EVERGREENS.—Now is the time also to put in cuttings of the various kinds of evergreen shrubs. Several of the commoner kinds, such as aucubas, common and Portugal laurels, laurustinus, box-tree, alaternus, variegated hollies, common privet, lavender, rosemary, phillyreas, &c., will strike root in shady borders, without any glass over them. The cuttings should be taken from the extremity of this year's shoots, and be about six inches long. The leaves should be fully grown and the wood moderately matured. Trim off with the sharpest knife, without injuring the bark, the lowest leaves, leaving two at the top of the cutting, if large like the laurel, or more if small like the box. Cut the bottom of each cutting across with a clean cut; bury them in the soil down to the leaves across the border. Plant them rather thickly in lines, four inches apart, treading the soil firmly to each row as you go on. Put in a few more than you are likely to want, as some may not succeed, and if they all do you can give to, or exchange the surplus with, some of your neighbours.

Some kinds of evergreen cuttings require glass over them, and to be kept close and shaded, to insure their growing. Most of the resinous tribe require this treatment: the *Irish yew*, for instance, and the *Arbor vite*, as well as others of similar habit. Several kinds produce seeds, and are propagated that way; the best time to sow these is in April. *Portugal laurels* are best raised from seed, and so are common *hollies*, but all variegated varieties must be increased either by cuttings or layers. Again, some may be increased by grafting or budding. We remember, about this time last year, being allowed by the Earl of Harrington to inspect his splendid collection of conifers at Elvaston Castle, Derbyshire.* Mr. Barron, his gardener, a most excellent man, showed us long avenues of *Cedrus deodara* (the Himalayan cedar) that had been grafted upon the common cedar of Lebanon (*Cedrus Libani*), and they appeared to be quite at home, growing with unexampled rapidity and strength; they had been grafted about a dozen years.

* *Conifera*—the cone-bearing or fir tribe.

We bud, as is well known, the variegated hollies upon the common holly, on which they grow much more luxuriantly than on their own roots, whether raised by cuttings or layers.

FLORISTS' FLOWERS.

CARNATIONS AND PICOTEES.—As the layers put forth roots let them be put into the pots in which they are to be kept through the winter. The soil to be used now should be of a rather poor character; too much stimulating matter would have the effect of causing too much luxuriance of growth, and often during the winter a yellowness in the leaves by no means desirable. Pure sweet loam, with about one-eighth of very much decayed leaves, commonly called vegetable mould, will be the best soil or compost for these plants to grow in through the winter. Expose them fully to the open air now, and guard them from all destructive vermin, such as wireworms, snails, rabbits, and hares.

THE CLOVE CARNATION is an old favourite, and deservedly so. Every cottage garden ought to have several patches of this sweet smelling flower: it is much hardier than the carnation, and is therefore more easily kept and managed. To increase it, it requires layering exactly in the same way that the carnation does; but this operation may be done much later in the year on the clove. Layers of it will succeed even yet, but we do not advise delaying layering even cloves beyond the end of this month. If a year-old plant sends out five or six or more shoots, and these are layered now, and those layers are left on the stool to bloom next year, the quantity of blooms will be very large. We counted very lately on a stool so managed nearly one hundred blossoms. The clove carnation is an excellent plant for bedding, the dark colour contrasting finely with the lawn, or even its own light green foliage; flowering at this season, too, when the carnation and picotee are nearly out of bloom, renders it very desirable. Messrs. Henderson, of Pine-Apple-place, possess a dwarf white variety of this plant, equally as valuable for bedding and making a contrast with it, which is often desirable. This variety seldom grows more than a foot high, has large flowers numerous produced on short stems, and is quite as fragrant as the dark-coloured clove.

SEEDLINGS should now be planted out in nursery beds four inches apart every way; keep them clear of weeds; stir the ground between them frequently, and before winter put on a cover of decayed leaves, from half an inch to one inch thick; this will strengthen your seedlings both now and in spring, for it will protect the roots during winter.

T. APPLEY.

GREENHOUSE AND WINDOW GARDENING.

POPULAR ERRORS: Autumn Growth.—Many people, sensible people too, believe that the longer they keep or encourage plants to grow in the autumn the more organisable matter, or, in plainer words, the more digested food they will prepare and store away for future use. This is quite a mistake, as physiology has long since asserted. It is not too much to say that every leaf that is produced on woody plants in our climate after the end of August is a direct robber of the parent plant, because, in the first instance, every leaf or inch of young wood that is made at any season is formed out of food previously digested by older leaves of the same season, or by those of former

seasons; and no leaf has the power of digesting food for itself, or the bud which accompanies it, much less for the general secretions of the parent plant, until it has first attained a certain age. That age is very different in different plants, and no greater boon could be rendered to gardening than to shew at what age the leaves of the principal plants—grown either for their fruit or for their flowers only—have attained the proper age to digest or elaborate food. The best time to “stop” the shoots of a given plant would then be certain, and not so liable to misuse as at present it is under the management of inexperienced persons. To be on the safe side of the question, however, we advise a general stopping of all plants late in the autumn that do not produce terminal flowers, that is, at the end of the branches. Theory sanctions this practice, “because after that season newly-formed leaves have little time to do more than organize themselves, which must take place at the expense of matter forming in the other leaves,” as Dr. Lindley has said somewhere; therefore, stopping plants at this season, or earlier, is a sound practice, and will enable plants to ripen much better, and I need hardly remark that no exotic plant can be got too ripe in our climate, and also that the more ripe a plant is the less damage it can receive from close confinement in our pent-up greenhouses during our long winters; therefore, check all tendency to late growths by nipping off the tender leaders. Young heaths, epacris, acacias, and such like hard-wooded plants, are particularly improved by this practice, and as nurserymen never think of this treatment, and would rather show you the health and vigour of their young valuable stock by pointing to the active growth of their plants next October, the sooner you buy in such things as you may wish to possess the sooner you can put a stop to this growing system.

Another extraordinary delusion is this—that late autumn growth encourages the extension of roots, and that this is beneficial to the future welfare of the plant. This absurdity has almost obtained public belief in the rising generation of gardeners. In the first place, we have seen that the quotation above from Dr. Lindley goes to prove that late autumn growth has hardly time to “organize itself,” how, then, can it organize roots at the extremity of the system? But supposing that it could do so, for the sake of argument, what then? Does the mere extension of roots add to their power of absorbing moisture from the soil? Not a bit of it. The true mode of increasing the power of the roots would be to cut off the young points of every one of them, if that could be done, as early in the autumn as the points of the shoots are nipped off; then, with the natural heat of the season, and the power of the old leaves, which alone can influence the formation or extension of roots, new roots or mouths are soon formed from the cut end of the roots, and from new side roots called into existence by the stopping of the points. These new mouths extend more or less, according to the warmth of the season, the strength of the old leaves, and the porosity of the soil, and they are ready in the spring to suck up powerfully, according to their number. Artificial warmth will accelerate the extension of roots long after all the leaves have dropped off in the autumn. Make a hotbed in October over the roots of the ash, elm, or vine, or, indeed, over the roots of any plant, and the roots will grow on to Christmas as if all the leaves were in full activity. This I have seen over and over again, and nothing is so familiar as deciduous plants making roots without leaves when placed in bottom heat, to

say nothing of all our Dutch bulbs now making roots abundantly in the absence of leaves; therefore, stopping the late autumn growth does not prejudice the extension of the roots, neither do the late formed leaves add much to the power of the roots.

Any woody plant, fruit-trees, and all that are unhealthy, are very much encouraged by being pruned, or stopped, early in the autumn; and, on the other hand, plants that are too luxuriant to produce much blossom may be reduced in strength by allowing them to grow on as late in the autumn as they will, and not pruning them till late in the following spring. The reason seems to be this: when we stop a shoot in the autumn the ascending sap, though now getting sluggish, has still sufficient force to fill up the remaining buds, and the more full and ripe the buds are in the end of the season the stronger they will break in the spring; but if this rising sap is permitted to expend its force in the formation of new wood and leaves late in the autumn, the lower buds are left weaker than in the former case, and consequently their force is less active in the spring.

By the foregoing rules we regulate the growth and flowering of many greenhouse plants, particularly climbers; we cause the rampant growers to expend themselves in growth, as it were, and so compel them to flower more freely, and a large crop of flowers or fruit will bring down a strong plant sooner than all the pruning in the world, because it expends a large share of the organized juices or digested food. Yet, if there were any truth in the doctrine that late growth added force to the roots, the contrary effect would have been produced, so that a given system may be right, although the explanation of it be otherwise; and it was a shrewd advice of Sir Matthew Hale's to recommend a country justice of the peace to decide cases which came before him to the best of his judgment, but never to assign his reasons, for the decision might be right, but the reasons for it had many chances of being wrong.

Liquid Manure.—The most mischievous popular error of the present day, however, and one which the correspondence of *THE COTTAGE GARDENER* has proved to be of a widely-spreading influence, is the supposed virtues of liquid manure. A grass-plot is brown and thin of herbage, a dose or two of liquid manure brings up the grass thick and strong; a pelargonium, or fuchsia, is also not of the right colour, owing to some defects at the roots, and liquid manure is supplied to recruit the vigour of the plant, but the crippled roots either refuse the dose or their derangement is aggravated by the application. Another trial is made, but matters get worse and worse. “How is this? What will feed the goose should also feed the gander, but here it turns out to be otherwise; we must write to the Editor of *THE COTTAGE GARDENER*, he is so obliging, and he knows everything”—(of course he does, all editors do)—“but we must send him full particulars—four pages, at least—for fear he should miss a bit.” Poor Master Editor reads on and on until he comes to the P.S., where the pith of this long story lies. He answers, “the dose was too strong,” and this is more puzzling than ever. “How could a dose which restored the tender blades of grass to health and beauty be too strong for a large fuchsia? He must have misunderstood the letter, or else he is—no matter what.” Not so fast, however. Liquid manure is the most powerful food that can be given to plants, because it contains most ammonia, and to feed plants that were impoverished through insufficiency of food in a poor soil should be a very different thing to supplying the wants of a plant

diseased through some derangement of its roots or leaves. In these respects plants differ very little from animals. A lean beast with scanty pasture may still have a good appetite and a healthy stomach, and rich nourishing food will soon make him fat and sleek again. It is just so with a plant under similar circumstances; but let either a plant or an animal be deranged in the lungs, or in the digestive organs, and give him strong stimulating food, or ardent spirits, and you will kill him with over kindness. When any thing is wrong with plants, therefore, liquid manure is the last remedy that should be thought of. Even very strong plants may be injured by it in the dull winter season, and I cannot now recollect a pot plant in this department, except the chrysanthemum, which is at all benefited by this way of feeding; and I would advise liquid manure to be given up now till the next season sees our feeders in healthy motion.

Excrements from Roots.—One more absurdity, and I have done with the subject for a time, and that is a notion that obtained a strong hold on the common mind of the whole country a few years since, that plants were endowed with the power of discharging the useless or unappropriated part of their food as excrements by their roots. What a libel on nature! A plant may have ten thousand mouths at each extremity, for all parts of young roots and old leaves are full of mouths, and feed by them too; and even school children know by this time that the food of plants is digested by and in the leaves; and seeing, or rather knowing, that leaves have as many mouths as roots have, why should not the refuse of the food be discharged by the nearest mouth? It is so, and constantly by a copious perspiration. The invisible vapour constantly thrown off by the leaves under the action of light is the true and only excrement of plants. The leaves digest the food and throw off what is useless of it, and to enable them to execute this task, Dr. Lindley has said that "God has formed them with wisdom no less infinite than has been displayed in the creation of man." All this and much more that might be said shows how essential it is for the welfare of our plants that their leaves should be taken the greatest care of in order to keep them clean and in sound action.

TROPEOLUM TRICOLORUM.—Now for a little practical gardening. This is a good time to plant the tubers of the *Tropæolum tricolorum* (three-coloured nasturtium), one of the very prettiest little greenhouse or window climbers that one can grow. The roots, as we say improperly instead of tubers, are not unlike red potatoes, only they have but one eye; this is about their natural time to begin to grow, and they grow on all the winter, their slender branches taking hold of any kind of support to raise themselves by, and their leaves are like shamrocks in miniature. Their flowers, which come late in the spring, are produced as thickly as blackberries, and so exquisitely beautiful, and so close together, that a string of them, just as they naturally grow, would make a necklace for a pretty young girl. The colour is orange, crimson, and black—three colours—or tricolor, as the Latin name signifies. The tubers are sold in the nurseries like hyacinths, and not much dearer, not even so dear as a good new hyacinth. There is no plant, that I know, that I would sooner recommend to a friend than this, and the training of it should be left, if possible, to young ladies, as it is almost cruelty to see great heavy gardeners handling such delicate things with their rough fingers and corny thumbs. Strangers will find them most difficult to increase by cuttings,

as they require such nicety in their management; and, when they do strike, it must be under a bell-glass, and the first year's tubers will not be bigger than a pea. But presently I shall let the eat out of the bag, and tell of a mode by which they increase at the roots like potatoes, only not so many at a time. They keep in bloom a long time, and then fade off like a tulip, when either the pots may be put by on a dry shelf, or the tubers may be shaken out of the soil, and put in a drawer or any safe place till about this time. They must not be moved from pot to pot like most plants, but be at once put into the pot they are to flower in, and any light rich mould will suit them. The top soil from a cucumber-bed, with a little sand, would do; or if it was one half peat and the other half from a heap of compost-mould it would do. They do not require much water for the first six weeks till they make plenty of roots, and after that they may be watered like any other plants that are growing. After potting they may be left in the open air and in the sun till the frost comes, and a window would do very well for them after that. They might also be set outside on any fine warm day through the winter, for a few hours in the middle of the day.

Pots about nine or ten inches wide will suit them best, and, if one could get them, those called "upright pots" are far better for the way I propose to grow them, which is very peculiar. It is thus:—after a very good drainage, place three inches of soil, and then the tuber in the centre, then fill up till the soil is just one inch above the tuber, so that the pot is not half full; give one good watering, and see that the soil does not get too dry afterwards. By-and-by, a tiny shoot will come up, and, when it is six inches long, bend it across to the side of the pot very gently, and place an inch of fresh soil over it, so that only a little of the top is out of the soil, and leaning against the pot. Let it grow on again until the shoot is nearly a foot long, then bend it down and coil it round the pot, adding another inch of soil, leaving the point free from the buried part of the stem. By this coiling, fresh tubers are produced for increasing the stock, but planted in the usual way near the top of the pot no such increase can be had. Continue this way till the pot is nearly full in the usual way, and then place a trellis, or neat sticks, in any fanciful way you like, and a couple of feet or rather more above the pot, training the delicate shoots all over the supports. Like all of us they delight in getting up in the world as fast as they can, and if you indulge them that way the bottom of the trellis will be naked, therefore the best way is to train them from the beginning backwards and forwards at the bottom, and if they do not make side shoots after this bending, nip off the very point; and you may go on nipping them occasionally till the end of February, unless they make enough of side shoots to fill up the trellis. If the shoots are first laid at three inches apart regularly, that would be a good distance, and the after shoots may be laid across these like fancy network: in short, you may do anything with them in the way of training. A pot on each side a window, and the shoots trained up to strings and across the top, would look remarkably well, and when the flowers came you cannot understand, from any description of mine, how rich and beautiful the fringe would look.

There are many other kinds of tropæolums, but this is the prettiest of them all. The Canary-bird plant is an annual tropæolum. The real English name of all the tropæolums is Indian cress, because their leaves taste like cress; and the meaning of tropæolum is a trophy, as it must have been a great

trophy when we got them over first from South America. The way to pronounce the word is to put the stress, or the accent, on the diphthong, *æ*, but many people in the country put the accent on the *o*, which is a vulgar way—just like putting the accent on the *o* in *Ipomea* instead of on the *e*. It is the next thing to low breeding to pronounce these names wrong, and I am always sorry when I hear respectable people say a name in a wrong accent; and, yet, how are the mass of the people to learn how to say them properly unless they are taught? We gardeners learn them from books, and there are regular laws which govern these things, like the rules in grammar, but classical scholars alone can apply them properly.

D. BEATON.

HOTHOUSE DEPARTMENT.

VINES IN LATE HOUSES, VINES IN POTS.—This subject is urgently presented to our notice this week by the inquiries of correspondents, or we would have allowed at least the latter part of our heading to have remained in abeyance until the commencement of another year. What we say now will be applicable to vines in both conditions. Vines in late houses will now require considerable attention. The fruit will be fast ripening, and the great thing is not only to secure and preserve it, but to look forward and see that the wood is rapidly maturing for the securing of a crop the following year. This ripening or maturing of the wood can only be obtained by such an exposure to heat and air that the juices will become highly elaborated, and the wood hard yet plump from the circumference to the centre. All other things being equal, the stronger the wood, provided it is thus matured, the more fruitful it will be. Hence good grapes are frequently produced from small weakly wood, and poor grapes from that which is strong and rampant; but in the one case the wood was like heart of oak, in the other soft and porous as a willow. During the season of growth, and until the last swelling of the berries is over, and especially in vines not over strong, it is of importance to give the lateral shoots the permission of growing, so far as your space will allow, and it does not interfere with due exposure to the sun of the principal leaves; because such growth above will secure a similar expansion of the absorbing feeding roots below. But now growth is a secondary matter; the perfecting and maturing of what has already grown is the first consideration to be attended to, therefore every appendage must be gradually removed, except the primary leaves that retain the principal buds in their axils. By-and-by, in late houses, or even now, the buds on the ends of the rods and shoots which you intend cutting off in winter may be picked out with a penknife, and long rods may have some of the weaker buds thinned out, but in all cases the leaves must remain so long as there is a particle of green about them, and thus the secretions formed will be stored more plentifully in the buds that remain.

We are quite aware of the fact that "there are chiefs among us takin' notes," and that is just what we like. We feel a thousand times more pleasure in addressing such persons than in writing for those who would take without thought our mere assertion as any ground for their practice. In gardening, as well as in a more important matter, it is right to try all things, and then only to cleave to that which is good. We would wish you, therefore, not to base your operations on mere practical routine, but on great principles. But, then, how apparently contra-

dictory are these principles! Every exponent of an opposition doctrine has his principles, on which he fully relies. Yes; and therefore you must not first repose on, but try them, by practice, by science, by plain common sense. It was never intended we should jump by intuition to right and just conclusions. Mind was given for the purpose of reasoning, analyzing, determining; bodily powers were booned to enable us to carry on and test results; and a great source of enjoyment it is to know and to feel that in this employment a right of head and hands our great happiness is to be found. Well, then, to go on.

Some look upon laterals, in any case, as so many blood-thirsty robbers, that are depriving the stem of its support and nourishment. We do not. The more numerous and extended the branches of a tree, the more stout and bulky its timber. Pruning, however judiciously performed, does not produce more weight of timber in the aggregate, but it concentrates that weight into one bole, and into the most useful and most desirable form. Those gentlemen who lately, in some of our periodicals, recommended in all cases the free growth of the laterals of the vine, were not much in the wrong so far as they looked to the mere increase of the bulk of the stem, but we think that they forgot that fruit-producing qualities were, in the case of vines in houses, of much more consequence than the production of timber. For promoting fruitfulness, fewer and larger leaves would be more important than a mass of smaller ones, shaded and shading one another. Hence though advocating the retention of laterals in such circumstances as we have referred to, yet we practicals seldom give them free scope for growing, but stop them at the first joint, and then again at the second, &c., and thus fewer but larger leaves are retained, and we gradually shorten and ultimately remove these laterals after the fruit is ripe wherever they would in the least shade the principal leaves and buds. We consider this much preferable to having long slender shoots dangling about where their supply of sun was the most moderate.

We once saw a house so managed that it was almost impossible to walk in it. The rods were tied to the wires near the roof in the usual way, and the laterals, never touched, were hanging in festoons almost to the floor. We were told that it was a new scientific system! Now, with all due deference to such experimentalists, we would question the propriety of such a system even for sound and healthy wood-making merely. The poor laterals in a house thickly planted would only now and then receive a stray ray of light; they might, therefore, be viewed as *robbers*, for if they kept green at all, it would be more from borrowed elaborated juices, formed in other parts of the plant, than from that which they themselves had an opportunity of assimilating. As a case in point, I met some time ago with a writer in a gardening and agricultural periodical, who tried to demonstrate the absurdity of cutting or removing the runners from strawberry-plants, at least before the winter, contending that each runner added to the strength, and consequently the fruitfulness of the parent plant. We wish Mr. Errington had been at his elbow; for the company present was almost entirely confined to amateurs, some of whom were evidently smitten with the scientific philological verbiage, and looked as much as to say, "You practicals have hitherto been leading us a regular wild-goose chase." It is seldom that we meet with error solely and alone; it always manages to get a little truth blended with it, and it is this that makes it at once savoury and dangerous. The error consists

in looking upon the formation of woody growth and fruitfulness as processes identical, whereas they are somewhat different. Hence we allow the runner of the strawberry and the lateral of the vine, under certain modifications, to remain, so as to secure a vigorous root action, while the fruit is setting, swelling, and ripening; and we gradually remove one and the other when these processes are accomplished: *not* because we believe that such removal will add to the luxuriance of the woody matter contained either in the strawberry-plant or the vine, and thus produce stronger plants and stronger wood, *but* because we believe that the juices raised by the vigorous root action will be gradually lessened in their quantity by the check given by the reduction of the evaporating surface; and thus, though the leaves left will at first be supplied with more than their usual quantity, which of itself will be no disadvantage, the even balance will ere long be restored; while thus the juices raised will be more highly elaborated, and the secretions formed rendered more mature, by each remaining principal leaf being more exposed to sun, heat, and air, than otherwise it could have been.

VINES IN POTS.—We might leave these statements as guides to *T. W.*, and other correspondents, in their treatment of young vines in pots. Those growing where they have had no fire heat, unless already they are well ripened, should have some artificial heat forthwith applied, in unison with plenty of air, and every ray of sun that can reach them. The growth of vines in particular, and other fruit-trees in general in pots, is very interesting; but the chief utility of the system consists in getting them to produce early when it would not be advisable to start the main crops. For this purpose the vines should be well matured, the eyes plump, and the wood firm. If, however, as we suspect, the growing system is still going on, he must exchange it gradually for the maturing, by removing laterals, and disbudding, and giving less and less water, so that before long he may move his plants to a north wall, and from thence, when the leaves have all fallen, they may be transferred to the passage of an ice-house or any other very cool place, as all deciduous plants like repose before being stimulated into action.

If the young shoots are long, say from three to four yards or more, it is desirable to concentrate as much as possible of the elaborated juices at the lower end of the shoot, say from a yard to a yard and a half in length; and for this purpose all the buds beyond may be gradually removed, beginning at the termination of the shoot, and retaining all the leaves. The disbudded part may be afterwards removed at the winter pruning, but its retainment before the new foliage expanded, especially in early forcing, we consider would be rather advantageous, though to some its presence would look slovenly and unsightly, and would be described by others as highly unphilosophical. When *T. W.* starts his vines they will thank him for a gentle moist heat from fermenting substances, but he will not think of doing that for some time to come. For such modes of growing vines, the plants may be raised from pieces of the wood containing a single bud, at the expense and trouble of frequent shifting until they are placed in their fruiting pots; or they may be raised from large pieces of the wood containing a bud or two, according to the coiling system of Mr. Mearns. Those who think of trying that method had better preserve some of the best pieces from the pruning of their vines in winter, placing them in dry earth to preserve their vitality, and in due time full information will be given for

rearing plants by both systems, so as to secure future and early fruitfulness. R. FISH.

THE KITCHEN-GARDEN.

MUSHROOM BEDS should now be made for producing the winter supply. Take care for this purpose to make use of moderately dry materials, such as horse and cow droppings, which must be well mixed, and incorporated with some good loam, to prevent the beds burning or becoming too dry for the spawn to work in, which sometimes happens if the materials are not at first well and systematically mixed together. If a gentle warmth is maintained and good spawn secured, the quantity of mushrooms of fine quality which a bed of moderate dimensions will produce is surprising. The bed should also be cased with good sweet loam, about two inches thick.

CARBOONS.—A portion of the strongest plants should now be bandaged up with hay-bands, &c., to bleach them.

CARROTS should be sown now on warm borders, to stand the winter, for producing young carrots in the early spring.

POTATOES should be taken up and stored away now on dry days, as, if stored in wet weather, they are liable to more excessive fermentation.

ROUTINE MANAGEMENT.—Continue to stir and surface-hoe all growing crops whilst the weather is favourable. Manure and trench all spare ground, and fill all vacant spots with anything likely to be useful for the late winter or early spring months. Nothing more profitable can be planted for this purpose than strong coleworts, the best kinds of cabbage, and bulbs of the Swede turnip.

WINTER SPINACH should now have its final thinning, and the ground be kept well stirred about it.

TURNIPS AND WEEDS grow fast at this season. It is a good plan to go over the turnip quarters with the hand and thin them out regularly, leaving the crop from seven to nine inches distant from each other, taking all the pulled-up weeds and turnips either to the pigstye, weed-corner, or to some other quarter which is shortly to be dug in. After this thinning and hand-weeding is done, take the draw-hoe and stir the earth carefully without injuring the leaves. The above will be found a clean, tidy way of doing the work at this season of the year, when we are often having showers. It may take a little longer time, but this will be amply made up, because work well done is twice done.

THE RAKE should not be a leading tool in the kitchen-garden, but it will be found useful occasionally at this season just to lightly catch up the principal weeds in some quarters, walks, and garden paths, between seed-beds, pricked out seedlings, &c. Let all such refuse be taken away to some other quarter to be dug or trenched in with other manure.

CUCUMBERS AND MELONS.—Give particular attention to the directions given last week.

ONIONS.—Take the advantage of all dry days and windy weather to take up the onions that may be ready but are still on the ground. They may be dried off on boards in open-air sheds, or open airy lofts, and such like places, to be looked over again on rainy days, and, when perfectly dry, to be stored away in their proper places.

CELERY.—Take the digging fork and break up the ground thoroughly and finely; then let it stand for an hour or two to dry, after which go along the rows with the hand and draw up the leaves together, press-

ing a little earth to them to keep them so, then with your spade give the whole an earthing up. Do this according to the height of your celery. If full grown, give it a good earthing up to bleach it for use; but, if small and growing, take care and not bury the hearts of the plants.

Look over all your *brocolis*, *savoy*s, and *borecoles*, carefully with the hoe, and stir the earth where you can without breaking the vigorous growing leaves, but take away all those that are dead, and pull up any runaway plant that you may see among them.

Mind and be prepared with a good stock of CAULIFLOWERS for final planting, about the middle of next month, to plant out under hand-glasses, &c. Be thinking where you will have them, and have the ground well dunged and trenched in readiness.

JAMES BARNES & W.

MISCELLANEOUS INFORMATION.

MY FLOWERS

(No. 44.)

The heartsease or pansy is a florist's flower, and has been brought to great perfection by care and culture; but without all that particular attention, which every lady cannot bestow, it is a very beautiful and lively flower for the border, and blooms so long that it is worth while to increase it as much as possible. During this month slips and cuttings may still be taken, but let damp weather be chosen for this process, or else water and shade are very requisite. A few small beds entirely occupied with various-coloured pansies, dotted about upon a lawn, have a rich and lovely effect, and their scent, though slight, is very agreeable. I strongly recommend every lady to procure as many slips of these plants as possible of every hue; and not to be disheartened if her flowers are not so fine or so perfect as those of some of her acquaintance; they will look gay and bright, and last as long as any of the choicer specimens. These favourite flowers come from America, and even from Lapland and Siberia. In Lapland they are found among the wild, desolate rocks, where little nestling portions of vegetation find shelter from the bleak, withering winds that sweep along those silent shores, so that they are hardy little plants, and would, probably, do well among our garden rock-work. The pansy is a species of violet, and if our brethren of those northern climes love to look at the beauties of the soil, they, perhaps, hail the first appearance of the 'viola tricolor' as we do that of our sweet garden violet. Lapland seems so far off, so frozen, and so dreary, that our thoughts seldom turn to its cheerless regions, yet this little flower comes to tell us that we have brothers and sisters even there, amid dark pine forests, and dismal marshes, and unfruitful plains, and that although they may not be such as we are in habits and language, although they are not all "of this fold," yet the same "good shepherd" watches over them, and will, in His own good time, bring them safely in.

If seed has been gathered from the pansy, it may now be sown, in a shady situation, in very light, finely sifted soil. It is best to crumble fine mould over the seed, when it has been scattered on the surface of the bed, as it requires very light covering. Press the soil down with the palm of the hand, that the seed and soil may adhere together. The plants will appear in a week or ten days, and when they are about an inch high transplant them into the bed in

which they are to flower; select an airy spot, and put them into the ground four inches apart; these will flower next spring, and it will be very interesting to watch for new varieties as they come into bloom. Seed gathered later than September must not be sown in open borders till the following April; but if sown in pots or boxes, where the young plants can be protected from frost, this may be done much later in the season. Keep the soil moist till the seedlings spring up. If any young plants spring up in the borders, self-sown, they may be planted out any time in this month for spring flowering. A very rich provision may be made in the autumn for the following summer. Our gardens will not look half so gay next year, if we do nothing for them now. By autumnal planting we gain a great deal of time; the seedlings are stronger and earlier, the offsets have time to settle down and prepare for early bloom, and all transplanted trees, shrubs, &c., make far more progress, and look healthier and richer, than when moved at the very time they are required to produce effect. A friend of mine—a lady whose wishes outran her prudence—requiring shelter and protection for her garden when a neighbouring hedge had been removed, procured a number of young larch-trees, several feet in height, and in full foliage. In this unpromising condition, during the warmth and dryness of summer, these unhappy trees were put into holes and covered up, without shade or moisture, and, as a natural consequence, died. Now, had this operation been performed during the wet and cool weather of autumn or spring, even the heedless manner of putting them into the ground might not have injured them, and although this summer must have passed without the screen my friend required, yet her trees would have been saved, and the open space would not have looked half so comfortless as did this row of red, lifeless forms. I am fully sensible of the pleasure there is in effecting our garden fancies the moment they arise, and of the tediousness of waiting for weeks or months till the proper time arrives; only we gain nothing by our impetuosity, and frequently lose much, so that I would gladly spare "my sisters" unnecessary disappointment by pointing out the consequences of my friend's too hasty measures. The eagerness that hurries us into a floricultural mistake may lead us into one of much worldly inconvenience, one that may, perhaps, colour our after-life, and give us cause of regret for years, for we cannot root up consequences and throw them away as we do dead trees. There is ever a "woe" "uttered" to those that take counsel, but not of "God;" yes, even in the smallest daily events of life. Are we not ourselves deeply conscious that there is in our rebellious hearts a going "down to Egypt" and to "the strength of Pharaoh," instead of asking at the mouth of the Lord? A little thought would send us to the "Counsellor," a little *patience* would lead us often to "sit still." Beautiful is Hezekiah's example to us all. If we spread our letters, if we spread our fears before God's mercy seat, how far more prosperous would be our lives? A thousand times better would it be for us, if we spread before Him our wishes and our will! Then our "leaf" would not "wither," as it too often does, but we should be "like a tree planted by the rivers of water," and "whatsoever" we do would "prosper." If our horticultural experience leads us to look deeper still, our gardens will be friends indeed, and return ten-fold the care we bestow upon them. Our Lord and Master conveyed powerful lessons by the simple things of nature—by trees, and

plants, and flowers. We may find rich instruction in them still, and if but one single ray of spiritual light reaches the heart from our "vine," or our "fig-tree," from "the grass in the field," or from the "brier" that grows in the thicket, we shall gain far more profit than "the whole world," if we had it, could afford.

TO CORRESPONDENTS.

USE OF THE NETTLE (Annie).—We never heard that the juice of the nettle promotes the growth of the hair, but it is not improbable, for the juice is slightly astringent, and used to be employed to check spitting of blood. We have not heard that infusion of *rumex*, made by pouring boiling water upon the leaves, will prevent the falling out of the hair. But we are promised a series of papers upon *The Physic Garden*, which will touch upon such subjects.

MILDEW LEAVES (A Parisian's Wife).—What you term the blight upon the leaves of your cucumbers and roses is mildew. It has been observed that the state of the atmosphere which appears to be favourable to the cholera, appears equally favourable to the growth of the minute fungi which form the mildew. Be this true or not true, yet it is quite certain that this year has been productive of a greater amount of mildew on almost every genus of plants than has been known, for many years past. We fear the season has arrived when it will be useless for you to contend against this attack, but you have the consolation of knowing that your rose-trees have completed their growths, and cannot be much injured by it.

SAL AMMONIAC AND LIME (Andover).—You have heard of an experiment in which a mixture of sal ammoniac (muriate of ammonia) and lime was found to destroy the wire-worm instantly, and you ask for the proportions in which they ought to be applied, and for an explanation of their action. The explanation is this:—when lime is mixed with sal ammoniac and brought into close contact by being moistened with water, the lime decomposes the sal ammoniac by combining with its muriatic acid and setting its ammonia free. If thus set free near a wireworm it would probably kill it. We should employ 50 lbs. of dry lime fresh from the kiln, slack it, mix it when quite reduced to powder with 80 lbs. of sal ammoniac, also in powder, spread it half an inch thick over the ground infested with wireworms, and dig it in immediately.

PIG KEEPING (A Friend of the Poor).—Your communication shall appear, and we shall be glad to hear further from you relative to pig feeding.

POULTRY (H. L. C.).—You will find your question answered at p. 259. As long as you can make hens lay they will not want to sit, or be "broody," as you term it.

STOCKS FOR ROSES (T. C.).—November is the best time to plant stocks for standard roses. They are obtained from the hedges and lanes, or waste places, and the king grows on strong land; their long naked roots are well pruned in, and the straggling branches cut away, retaining the straightest one for the stock, and this is cut at the required height of the future head, and then planted in good ground. Next season shoots from all parts of these naked stocks will push out, but three or four of the best placed near the top should be retained, and as soon as their bottoms are a little firm they are ready to bud on. Sometimes they do not grow very kindly the first season, in which case their growth is pruned back close to the old stocks in November, and they are in excellent order for budding the second season.

STRIKING CUTTINGS (A Lady Subscriber).—Cuttings of succulents are struck in pure sand; other cuttings in very sandy soil, with a thin layer of sand on the top. Generally, if the sand or soil is just kept moist it is enough, and the cuttings are potted as soon as they are rooted. The time they take to root must be according to the sort and the treatment; generally cuttings make roots soon after new leaves are formed.

PRUNING TREE MIGNONETTE (Ibid.).—You remind us that we say the tree mignonette must not be allowed to flower while the plants in the garden are in bloom, and then ask, "How can this be prevented?" The flower-bud at the top will form, and if left to itself will soon flower. If it is pinched off, the plant will grow no more from the main stem, and begins to look sickly from being stopped at all points. I had ten promising plants, and all have turned out alike. "If you look at a mignonette-plant in the borders, you will find that a growing shoot always comes from where the flower-spikes issue; when these separate, if the flower-spikes are cut, the growing branch will have more nourishment. When there is any doubt as to which is the flower-spike, let it alone till it separates from the other—the flower-spikes have no leaves, the other has; then cut off the flowering one. You have pinched off both in your hurry, and so 'stopped' your plants, but the next shoot below ought to take the leader's place."

WINTER SHELTER (Ibid.).—In most instances a small greenhouse will answer when we recommend a cold pit culture, and plants are winter kept in winter in a greenhouse as you do in pits. Your treatment under your circumstances (covering the glass with mats, and putting in a Joyce's stove during very severe weather) seems unobjectionable; and all the greenhouse plants, including climbers, which we mention or recommend, may be kept by your mode, therefore we should only waste space in repeating lists.

LISTS OF PLANTS.—We are often applied to for lists of plants to suit particular houses, pits, or windows, but as we are most anxious to make the best of our confined space, we can seldom reprint lists that have already appeared. If our readers would refer to our indexes they would often save themselves and us much needless trouble.

LIST OF ROSES (Polycrest).—You will find a list of the forty best, with descriptions, &c., at p. 24 of our first volume.

COTTAGE AND LAND (J. Rymann).—Put an advertisement in our columns, and in the *Times*, stating exactly what you require.

DESTRUCTIVE WASPS.—Enclosing in bags made of fine muslin is the only mode of completely protecting your wall fruit from wasps. To lure them from it, the best mode is to use the bottles recommended by Mr. Errington at p. 308. If the wasps increase in number, increase the number of your bottles also. But, above all, offer a reward for all the wasps' nests found in your neighbourhood. See these, and destroy them yourself by the mode recommended at p. 216 by Mr. Payne. We know it is effectual.

MELON FRAME (A Subscriber from the Beginning).—This should be made as the common cucumber frame, and this you can see and measure at any market gardener's. In your own neighbourhood. As for the routine of culture, if you will refer to our calendars and indexes you will find the whole that you require. How to make the bed you will find at p. 26 of our first volume, and at p. 244 of the present. We shall give more directions for melon culture from time to time.

NAME OF PEA (J. Fluckton).—The pea with very curved pods is either the *Siclike* or the *Scimitar*, but in good soil they grow three feet high.

ARBELIA FLORIBUNDA (W. R. L.).—This is a greenhouse evergreen shrub, a native of Mexico, and bearing red flowers. *Hypericum Nepenthes* is the name applied by nurserymen to the *Hypericum*; it is a greenhouse shrub, with yellow flowers, and is the ornamental.

PETUNIA SEED (A Subscriber).—See p. 192. Let your *verbenas* cuttings struck this month remain through the winter in the pots where struck.

BEE-HIVES (John Spade).—You say that out of a common hive you will get with that top "with four holes in its wooden top, covered with four flower pots, out of which a small square piece has been taken by means of a saw-file, and a bit of glass put in its place. This was a contrivance of mine. Now, what I want to know is the most approved size for a hive which is to be worked with small glass or decanter pots. My pots hold about a quart each, and have been filled twice this year, leaving still a good supply for the bees in winter in my hive." The most approved size for such a hive is 9 inches deep, 12 inches in diameter, inside measure, straight sided, and consequently in shape like a half-bushel measure. One hole, 4 inches diameter, in the flat top, to be covered with a smaller hive, is the plan adopted by the inventor, Mr. Payne. At p. 239 of our first volume you will find drawings, and a full description.

CRAB HEDGES (L. D., C. Parsonage).—If Crabs are not to be obtained in your neighbourhood, your only alternative will be to use apple pips, as directed at p. 309. A vast quantity of the seedlings will prove Crabs. Any apple pips will do. Bones after cooking do admirably for manure, as their chief value arises from the phosphate of lime in them, which is insoluble in water. We know of no good work of moderate size on *British Insects* exactly such as you require. It is much wanted. The best we know of is *Dr. Hutton's Entomologist's Useful Compendium*. Other answers next week.

BEDDING-OUT PLANTS (Lover of Flowers).—You can hardly keep petunias, salvia, and verbenas, by the help of a sitting-room. Yours are out in the borders, and old petunias will not bear removing. Cuttings having been made earlier; you are too late now unless you have a good hotbed.

INSECTS ON CINERARIA ROOTS (J. E. B.).—Two or three applications of lime water, as you propose, will probably kill or drive them away. You had better exhibit your syzybe to the Society of Arts, or impart your plan to some large manufacturer of such tools, and gain for a per centage on all sold; but, whatever you do, never take out a patent; you will lose all the money spent upon it. This is Mr. Beaton's opinion as well as our own.

FUCHSIA CORDEIFOLIA (F. W. T., Leeds).—This is not worth much, being a pale sickly-looking thing, with large soft foliage. It makes a large standard, however, and blooms easily enough after it is of that size.

HYBRID PERPETUAL ROSES (Ibid.).—These are better raised in the autumn from cuttings under a hand-glass in the open ground, but they will root without the glass. In doing this you are better off than your own rose guide. "Rose Cultivator's Guide" is the best book on roses. Most roses will root from small cuttings put in in August under a hand-glass.

MAGNOLIA GRANDIFLORA (E. M. E.).—Your plant, placed ten years since in a warm corner of a Naxos garden, has grown well, but never flowered. We think it is not the true sort, for there are several varieties. The true one is quite of a rusty brown colour on the under-side of the leaves. We know of one in your latitude only four years old that is now in bloom. The advice given you—carefully to remove the earth, and to cut away the under-side—is very judicious. Pray try the plan, and let us know the result.

BLUE HYDRANGEA (J. C., Holloway).—You say: "When I want a blue hydrangea I choose a good single-stemmed plant, and pot it in heat or peat mould, with water plain water till the flower head just appears, and then give it nothing but alum water, by which really I get a very fine blue flower." You are fortunate in having access to that kind of peat, which turns the natural colour to blue. The alum water, we consider, can have nothing to do with changing colour at the last stage. Is your peat from Epping forest? You have hit on the best mode of managing the *intermediate stock*, and we will insert hereafter any more of your experiments, for we are always glad to make *THE COTTAGE GARDENER* a vehicle for interchange of opinions amongst its readers; but we only want facts.

VINES IN POTS (T. W.).—You will find that Mr. Fish has considered this mode of culture in the "Hothouse Department."

POTTING BEDDED-OUT PLANTS (A Subscriber from the First).—In doing this you should prune close the tops and cut off the straggling roots of fuchsias and geraniums. You may divide your calce-

laris so as to increase your number of plants, but the roots will require but little pruning. In Hampshire we leave our fuchsias in the borders all the winter, not even cutting them down, but covering over their roots and up their stems to the depth of eight inches with coal ashes.

CHINESE DWARFING (Mulberry).—We have no experience in the mode of layering—for it is nothing else—practised by the Chinese as described at p. 41 of our first volume. You had better examine the branch of your mulberry-tree to ascertain if any roots have been emitted. If there are any, you can cut off the branch, and plant it in November. We fear you will not find any roots, but we shall be glad to hear the result.

HOW HOTLY HONEY BE EXHIBITED? (*Secretary, Tattenhall*).—In the hive or glass, if possible; otherwise, in the combs, but certainly not drained.

OVER-LUXURIANT ROSE (H. U.).—Your Cloth-of-gold rose against a S. wall is three years old, has a leading shoot twenty feet high, and lateral shoots from every part of this four or five feet long, but it has never bloomed. To stop the shoots would still further defer its blooming, for stopping rampant climbers like your Cloth-of-gold rose only strengthens them. The best way to curb it, so as to get it into bloom, is to train the side branches horizontally, or to cut them off at full length, and to root prune it at the end of March. If you reduce the roots nearly one-half it will not be amiss. We hear this race does well in a conservatory, planted in a narrow border.

ROSE CUTTINGS (Ibid.).—These are struck in phials of water in the summer; the plan is more curious than useful. All the tender roses root so freely in the spring, in a gentle hot-bottom heat; and the harder sorts in the open borders, or under hand-glasses, from August to October.

WINTERING BORDER PLANTS (W. O. R.).—Old geraniums and fuchsias any one can keep over in any state if the frost does not reach them. You wish to tell your cucumber frame would not winter such plants; millions of them are saved that way every winter. See our directions in former Numbers: for instance, pp. 295 and 291.

ROSES PLANTED LAST MARCH (E. L. A.).—Your gardener was quite right in cutting them quite close when they were transplanted. You say they have not done well, but it was the late transplanting which injured them. Prune their shoots back to three or four buds early in next November, give them some thoroughly decayed dung over their roots, and then, if your soil suits them, they will be fine next year.

MONTHLY PARTS (R. P., Stourbridge).—What you refer to in these was merely an advertisement stitched in: and for the truth of what is there said we are in no way responsible. We advise you to take the weekly numbers. Thanks for your exertions.

POULTRY (Rusticus, Lantree).—You will find the information in Richardson "On Domestic Poultry," price one shilling. It is unjustifiably cruelly, and accompanied by much loss than profit. The other operation is a most extraordinary surgery.

GOOSEBERRIES SHEDDING THEIR LEAVES (Buck).—These were planted too shallow with their roots only three inches below the surface. We should raise the earth over them forthwith three inches deeper. We do not think they will die. Thanks for the information about your potatoes, which we will publish next week.

MOVING RUBBER (J. B., Richmond).—Though the roots are large you need not divide them unless you require more plants. The cause of your rhubarb producing smaller leaves must be that you cut too much from it, and gave it too little manure. Your other question next week.

CANANTOS AZUREUS (W. E.).—The cuttings do not strike freely. Plant them near the side of the pot in a mixture of peat and sand; plunge in a good bottom heat, and under a bell-glass. Wipe the condensed steam off the inside every second day. You can have all the back numbers, and a cover for the volume (price 1s.), by application to our office through your bookseller.

LIST OF PLANTS (G. R., Ity).—We know of no list such as you require. The work which would suit you is London's "Hortus Britannicus," but it is not cheaper than 3s., unless you could meet with a second-hand copy.

LIGHT MANURE (A. Cuckney Gardener).—You have adopted our plan of sowing flower pots among your crops, as described at p. 294, in order to apply the liquid manure near to the roots; but you have no liquid manure! You say that salts which can be purchased at the druggist's will do as well, but in this you are quite mistaken: no combination of salts will equal in fertilizing power organic matter rendered soluble by decay. Your best substitute for common dung is appropriate for liquid manure is genuine guano, which you may obtain of the London Manure Company. Put an ounce to each gallon of water.

THE COTTAGE GARDENER (S. F. P., of F., Cincinatus, and A. Rest Well-wisher).—We accept your suggestions in the kind spirit which gave birth to them, but you will see your mistake when we observe that we have increased the amount of pages devoted to the poorer cottagers' gardening, and have doubled our size without altering our price. It was only by an increased circulation obtainable by the improvements we have made in the way that we can afford to do all this. We do all we can for improving the gardening of the cottager, and there is no reason why we should not enlarge our sphere of usefulness, as it is done without any loss but much benefit to each class of our readers. How impossible it is to please all is proved by the fact that for all you disagree in what you approve and what you dislike.

SHYRINCHEUM BERNARDIUM (W. M. H., Corfe Castle).—Our correspondent says that the plant (see p. 392), which is a garden plant, as the place where he gathered it was once cultivated. He adds, "I have no doubt but that it may become indigenous in a few years."

VINEGAR PLANT (Rev. E. Bonister).—This gentleman writes to us as follows: "I have followed the directions given by Mr. Middlemiss for the manufacture of this plant at p. 94, and find, at the expiration of six weeks from the commencement of the experiment, nothing but a coating of mould or mildew at the top of the mixture. This mouldy covering has embodied in it several small circles, somewhat resembling the engraving given at the same page. I ask yourself, or any of your correspondents who may take the trouble to reply, whether either the whole coating of mould, or the small circles contained in it, be the vinegar plant? The mixture which produced the mould has not turned into vinegar, although I have kept it in the warmest place I could find, and the mould has not increased. I have never tried Mr. Middlemiss's recipe, having had a plant or fungus sent to us. Perhaps Mr. M. will be kind enough to reply to this."

ANEROID BAROMETER.—The Rev. E. J. Howman, residing near Downham, Norfolk, has most obligingly sent us the following in answer to the query of a correspondent at p. 290:—"The instrument I possess—which in justice to a most conscientious tradesman, (inasmuch as he would not supply me with one with the manufacture of which he was not perfectly satisfied), I feel bound to say I purchased of Mr. E. M. Christie, optician, &c., Strand—has been taken by a wheel harometer, and the register has been taken between eight and nine a.m. To me, so far as it has gone, it appears to be perfectly satisfactory. So far as my observation has enabled me to form an opinion at present, it strikes me that the aneroid is much more sensitive than the mercury, commencing its movements much sooner, and that it is not so much, if at all, affected by a coming gale of wind. Thus, on the 19th of February the mercury fell 32 tenths, while the aneroid fell only 28. Again, on March 1st the mercury fell 34, the aneroid 25; while on March 9th the mercury fell 92, and the aneroid rose 65; and the next day, on the gale ceasing, the mercury rose 41, and the aneroid 57. Of course there are variations which cannot be accounted for, but on the whole the fluctuations of the aneroid, as tested by those of the mercury, are, I think, sufficiently regular as to stamp it a trustworthy instrument." We can only say in addition, that Mr. Howman's register kept during the last seven months justifies his opinion.

PRUNING SCISSORS (J. Turner).—We, and many of our friends, have tried your improved pocket scissors, and the opinion of all are strongly in their favour. We recommend them particularly for lady gardeners.

LOW EVERGREEN FENCE (Nemo).—The prettiest and most effective we have ever seen is made of wire stretched six inches apart, between posts two feet high, with the stems of a row of the larger periwinkle (*Vinca major*) trained up, interlacing between the wires.

HIMALAYAN PUMPKIN SEED (Rev. F. Pyc).—Thanks; we shall be very much obliged by a supply.

MARTIN DOYLE.—We are very glad to hear that the Rev. Mr. Hickey, who wrote under these names, is at this time not only in the lap of the living, but is curate of Thatcham, near Newbury, and employed upon a Calendar of Monthly Gardening for the use of the peasantry of Ireland. He is the most capable man we know of for so desirable a work.

LEKES (J. P. R.).—By cutting off the tops of the fresh leaves about once a month, the white neck of the leek, which is the useful part, becomes much thicker, the sap being concentrated there by the pruning. The leaves of your elegant anemones becoming mildewed and yellow is only the usual consequence of autumn dews and chilly nights. If your edgings are of the real Sea-pink (*Statice maritima*) you may very easily destroy all the slugs in it by watering it every evening either with sea water or with a solution of salt in water, four or five oz. to the gallon. You may sow a little *Brussels sprouts* and *Gerau kale* at the beginning of this month for planting out in spring.

HELIOTROPISM VOLTAIREANUM (J. C., Holloway).—Do not sow the seeds of this until next spring. We cannot tell you the name of the moth which is the parent of the caterpillars on your dahlias unless we see them. If you send them, do so in a wooden tooth-powder box, or the post-office people will destroy them with their merciless punches.

FUCHSIA (J. Buke).—Nearly all the species are from Mexico and Chile, and have been introduced since 1824, except the old scarlet, *F. coccinea*, which was brought from Chile in 1785, and *F. lycoides* in 1796. Others come from Peru, Brazil, Demerara, and New Zealand.

SOIL FOR GLADIOLI (Ibid.).—The best soil for them is one half light loam, one quarter peat, and one quarter leaf-mould. See full directions for their culture in our first volume, p. 160.

NAMES OF PLANTS (P. S.).—Your climber is *Ipomoea quomoceli*. (*R. Reynolds*).—Your pink flower is *Pentstemon glaberrimus*, and your blue flower is *Scandellia verticillata*, blue and white *Scandellia*. (*Verax*).—1, *Madia elegans*; 2, *Pentstemon glaberrimus*; 3, *Pentstemon gentianoides* alba; 4, *Enothera Fraseri* (7); 5, *Eupatorium corymbosum*; 6, *Colostea ageroides*; 7, *Buchnera americana*; 8, *Phlox subulensis*; 9, *Phlox latifolia*; 10, *Rudbeckia hirta*; 11, *Rudbeckia purpurea*; 12, *Ceanothus americanus*; 13, *Campylobasis*, var. alba; 14, *Trachelium speciosa* (7); 15, *Trachelium Lobeloides* (7). (*Bugsy-Bugsy*).—Your plant is *Cerintho maculata*, or Spotted Honeywort.

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WEEKLY CALENDAR.

M D	W D	SEPT. 27—OCT. 3, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
27	Th	Birch leaves yellow.	Many-flowered Starwort.	5 6 a. 5	4 6 a. 5	0 16	11	9 2	270
28	F	Ring-dove's note ceases. [noth seen.]	Evergreen Goldenrod.	5 7	4 4	1 18	12	9 22	271
29	S.	MICHAELMAS DAY. Autumn-green-carpent	Michaelmas Daisy.	5 9	4 2	2 23	13	9 42	272
30	SUN.	17. SUN. APT. TRIN. St. Jerome.	Golden Anaryllis.	6 1	3 9	3 31	14	10 1	273
1	M.	Remigius. Common Snipe plentiful.	Lowly Crinum.	VI	V	4m 44	15	10 20	274
2	Tu	Hort. Soc. Meeting. Walnut-leaves fall.	Common Soapwort.	4	35	risa	17	10 39	275
3	W.	Jack Snipe arrives.	Powny Helonium.	6	32	6 a. 35	19	10 58	276

MICHAELMAS DAY.—This day, on which our Church reminds its members of "Saint Michael and all angels," and prays for their guardian aid, was first instituted by the Roman Catholic Church in the year 487. We are at a loss to discover the reason for calling that celestial messenger of God a *Saint*, who is spoken of nowhere in the Scriptures but as an "archangel." To none but to him do the sacred writers give this title of pre-eminence. Five times do they mention him, and always as a spirit guiding the tide of battles. Thrice does the prophet Daniel speak of Michael as fighting against Persia on behalf of the Jewish Church; once does St. John, as leading on the angelic host against the devil and his angels; and lastly St. Jude, speak of him as fighting in single combat with the same spirit of evil for the body of Moses. The custom of eating roasted geese on this day is of very ancient date, arising probably from this "pasture of the common" being now of growth most desirable for table use, and because this great festival of the Romish Church occurred at the same season, and all Northernmen love good eating on such occasions. It is quite certain that long before the reign of Queen Elizabeth it was customary to eat "a fat goose" on the Michaelmas festival. True it may be that on this day, in 1588, at Sir Neville Unfreville's, near Tillybury Fort, "Good Queen Bess" was dining off this bird, "for her majesty was much affected towards savoury dishes," and that receiving intelligence of the Spanish armada's defeat, she may have commanded that both the event and the dish which she relished should whilst she lived be associated together. All this may be true, and yet the custom have been long practised previously.

St. Jerome, or Hieronymus, is one of the most eminent of Christian ecclesiastical writers. He was born at Strido, on the borders of Dalmatia, about the year 329, and died at Bethlehem in 420, where he had established a monastery. He was learned and enthusiastic, but far too intemperate to be reconcilable with our estimate of the Christian character. His writings are valuable by containing many quotations from the early translations of the Bible, and by their recording the opinions and explaining the customs of his Jewish contemporaries.

REMIGIUS, Archbishop of Rheims, was an exemplary prelate, chiefly memorable for having converted to Christianity Clovis, the

founder of the French monarchy. He was born in the year 439, and died in 535.

PHENOMENA OF THE SEASON.—One of the most common phenomena of the autumn is the abundance of dew occurring, and its cause and nature have been the occasion of much learned research and controversy. Experiments recorded within the present century have determined the correct explanation of the phenomenon, and therefore we may leave the erroneous opinions unnoticed. All air contains moisture dissolved in it, and the warmer the air is the more moisture does it dissolve. When this air comes in contact with, or touches, anything so cold as to cool it down to the latter temperature, it would deposit upon the colder body 10 grains of water in the shape of dew. For this reason cold wine-glasses brought into a room of which the air is warm and moist, immediately are clouded with dew; for the same reason moisture is deposited and runs down the waime-coating and windows of a room; and the same deposit of moisture occurs when we breathe upon any substance much colder than the air thus issuing from our lungs. From the preceding facts it is evident that before dew can be deposited in our gardens the atmosphere in contact with them must contain more moisture than it can retain when cooled down to the temperature of the plants, &c., in those gardens. If the night is cloudy no dew will probably be deposited, because it is found that in such nights the earth and plants do not cool down sufficiently below the temperature of the air. The colder the bodies with which the air comes in contact, the more abundantly is dew deposited upon them. Thus, grass, apparatus, and other vegetables with very numerous surfaces, cool faster than smooth broad surfaces, such as gravel walks, and the soil of the beds; therefore on those vegetables the dew is most abundant. Dr. Dalton calculated that a depth of five inches of water is deposited all over the British isles annually in the form of dew.

INSECTS.—During September and October the points of the side shoots of



the Scotch fir (*Pinus sylvestris*) and of the heavy-wooded pine (*P. ponderosa*) are now frequently observed to have become yellowish colour, and this is found to arise from their being bored by a small insect, the Scotch-pine-bark beetle, *Hylurgus piniperda* of some entomologists, and *Hylesinus* or *Ips piniperda* of others. Our drawing represents this beetle much magnified, but naturally it is only as long as the line by its side. This beetle may be found in June. The wing cases are pitchy black, marked with lines, but the antennae and feet

are reddish brown. The rest of the body is black and bristly. The larva, or grub, may be now found; it is cylindrical, white about the middle, but both its ends are dull yellow. The beetle burrows along the pith of the young side shoots. The female deposits her eggs under the bark of old or even of dead pines, upon the resinous juices of which the grub feeds. We know of no practicable remedy but cutting off the ends of the shoots which have turned yellow, and burning them.

THE present number completes our second volume, and brings us to the close of our first year. In the customary Preface we will record our grateful feelings upon our prosperous course, and shall confine ourselves, therefore, on the present occasion to a brief notice of what are some of our purposings for the future. Among these are a series of Essays on the usual Weather, or Meteorology, of each week; an en-

largement of the Kitchen Garden directions; an interchange of Departments among our present contributors, so as to give our readers the benefit of their fresh experience and knowledge; a connected series of editorials on the Principles of Gardening; monthly directions for the care of the Poultry Yard, by the well-known *Martin Doyle*; on the Medical uses of our Native Plants, by a Physician, with their descrip-

tion and culture; and, lastly, we will mention that the authoress of "My Flowers" will contribute her gentle dew-drops in a weekly narrative of "Our Village Walks."

WE will commence our lectures on THE PRINCIPLES OF GARDENING by considering what these principles are which should be regarded in the practice of *sowing*. Sowing has for its object to secure to the seeds such circumstances as will best promote not only their germination, or sprouting, but the growth of the plants proceeding from them, so as to yield for the gardener that produce which he desires. Let us consider what are those circumstances.

In the first place it is essential that the seed has a perfectly formed embryo, or young plant, within it—such as that little heart-shaped body at the point of a walnut's kernel—and that it has arrived to nearly perfect ripeness. The reason for this is obvious: the young plant requires for its earliest nourishment a peculiar compound, usually saccharine or sugary matter; and this compound, in accordance with that universal fitness of things which demonstrates the wisdom of God, is always generated by the combined agency of heat, moisture, and oxygen gas,* from the substances most abundant in the fully ripened seed. Let barley be the example. Saccharine matter is essential for the first nourishment of the radicle, or first root, and plumule, or first stem and leaves, of the seedling, and into such saccharine matter is starch converted by the combined agency we have named. It is starch, therefore, that is the chief constituent of the seed. But if barley be gathered imperfect, and is dried, the chief ingredient is mucilage or gum; and this, if exposed to the essentials for germination—heat, moisture, and oxygen gas—instead of passing into saccharine matter, is converted into acetic acid, or vinegar, and the seed decays instead of sprouting.

As it is necessary that every seed should have nearly attained to ripeness before it acquires the power of germinating, and that the more perfect the ripeness the more perfect and the more healthy that germination, so is it equally certain that the length of time it retains the power to germinate differs in almost every plant. The seed of the coffee shrub loses all power to grow unless sown within a few weeks after it has been gathered, whilst that of the melon improves by being stored for one or two years, and celery remains capable of germinating for five times the last-named period.† These and all

other instances within our knowledge demonstrate that the more starchy and other matters, into which nitrogen does not enter as a constituent, that a seed contains, the longer will it retain its power to grow, and two familiar instances are common rice and the kidney bean.‡ Rice contains 85 per cent. of starch, and will retain its vegetative powers for many years; whilst kidney beans, which contain one-third their weight of animo-vegetable matter and other constituents, of which nitrogen is a component, will not vegetate healthily a second season.

This speedy loss of growing power to which seeds abounding in nitrogenous matter are liable, is just what the chemist would predict, for all bodies so constituted are most prone to decomposition and decay.

At the same time, let us not be misconceived as saying that such are the only chemical causes for a seed's shortened or lengthened retention of its growing powers; on the contrary, we are well aware that there are other causes, and for example may be taken many seeds abounding with oil. These, exposed to the free operation of the air, gradually lose their vitality, or power to grow, as the oil they contain becomes rancid. Preserved from the action of the air, no seeds are more retentive of vitality, apparently because when so preserved the oil they contain will remain sweet and unchanged for ages. This is the reason that in earth excavated from great depths below the surface, charlock, mustard, and such like plants, having oily seeds, are found to have retained their vitality.

In considering this subject, let it ever be kept in mind that almost every species of seed has a peculiar degree of heat, and a peculiar amount of moisture, at or approaching to which its vitality will be excited into action. Therefore, in all observations on the life-retaining power of seeds, and in conclusions deduced from experiment, it must be carefully secured that they have not been excited to those first steps of germination, which steps, if taken and then checked, invariably cause the destruction of a seed's vital powers.

This brings us to the consideration of the contingencies necessary to cause a seed's germination.

WE may accept as a rule that no bouquet will be strikingly excellent in which red flowers do not predominate, and in this it resembles the chief productions of the greatest historical painters; it may be called the key-note of their most successful efforts in colouring. Thus, bouquets of roses alone, or of geraniums alone, mingled with green for shade, are beautiful objects; but bouquets of yellow flowers, such as marigolds or escholtzias, alone would be intolerably glaring. It is the same with other decorations—scarlet curtains and crimson velvet dresses are rich

* Oxygen gas is a chief constituent of the air, without which gas neither a seed could grow nor an animal breathe.

† Melon seeds, by keeping, improve only in the sense in which gardeners consider the plant improved, viz., less of stem is produced, and the fruit is matured earlier. Whatever checks the development of the early organs, the radicle and plumule, produces this effect, and this is effected by age in the melon seed; its starchy component diminishes in quantity, being gradually converted into albumen, a substance like the white of an egg. This is less easily changed to the soluble matters necessary for the nourishment of the parts of the plant first developed.

‡ Nitrogen is another gas found largely in the air we breathe; it is a chief part also of ammonia.

and pleasing, but either of the other primary colours by themselves—yellow or light blue—would not be endured.

Nature seems to point out the importance of red as an impartor of warmth and cheerfulness—for God intends it to be “a happy world after all”—by the almost numberless varieties of its tints that are observable. Of 4200 flowers known to gardeners, it will be seen from the following list that they decrease in number nearly in proportion as they depart from the primitive and most lively colours.

White	- 1194	Green	- 151
Red	- 923	Orange	- 58
Yellow	- 951	Brown	- 18
Blue	- 594		
Violet	- 308		4200

It deserves a passing comment that in nature the colour and form of the leaves belonging to any plant are invariably those which either harmonize or contrast with its flowers better than any that human taste could suggest. Could any one devise more appropriate foliage for the rose or the camellia?

We have been asked to refer to some generally accessible picture by Vanhuysum, and the only one in a public collection which we can remember is, or was, for it is long now since we saw it, No. 121 in the Dulwich Gallery. Its colours, we think, will be found to be particularly harmonious, and where those which would otherwise contrast harshly are introduced, yellows and whites are, if we recollect truly, judiciously introduced to soften the discord.

With these few desultory remarks we shall cease from further comments upon this subject, doing so the more readily because promised some observations upon the same topic from the pen of a master.

THE FRUIT-GARDEN.

ROOT PRUNING.—In our last we adverted to the general policy of root pruning, and promised details adapted to the varied circumstances under which the fruit cultivator is placed, from the suburban town gardener, with his single pole of ground, unto the proprietor of the noble demesne, or even the commercial gardener. The latter class, indeed, so contrives matters in general that he avoids the necessity for much pruning of this kind; his mode of planting is not liable to mischances. In the first place, his soil is of a character that little preparation is necessary; his subsoil also is of a genial character; or, indeed, but for these two points, his profession would not prove by any means of a remunerative character.

It must be understood, therefore, that in writing for the amateur and the cottager, we write with the full impression that they labour under greater difficulties than the before-named parties; neither possessing, in the main, so good a situation, nor so much skill. Thus persuaded, then, we will proceed.

Root pruning, as at present practised, may be thrown into two divisions, viz., periodical root pruning by system, and root pruning through necessity. The first has been called into notice by Mr. Rivers, of

Sawbridgeworth, the eminent nurseryman, who, indeed, as we think, may be considered the originator of the system, or, at least, its greatest advocate. Of the other, root pruning through necessity, we must at once be egotistic enough to claim the merit—if merit it be—of keeping the subject warm, and of continually bringing it before the public for the last twenty years. The first kind we have never practised, and can say little about; we, however, apprehend it is not generally needed by, or adapted to, the majority of our readers, who rather, it may be presumed, aim at off-hand plans less tedious in character.

By *root pruning through necessity*, then, we merely mean the inducing a fruitful habit in fruit-trees which are of too gross a character; such may arise from other causes than mere richness of soil. An apple, naturally of rampant growth, may, by being grafted on a stock of great powers (or, rather, of strong vital action and capacious sap vessels), prove too gross even on soils of moderate fertility; whilst one of delicate habit, grafted on a weak or imperfect stock, may prove too weak even to make sufficient young shoots on the most powerful soils. The question of stocks for grafting is a very broad one, and too broad and too digressive in character to discuss now: it will receive attention in due time. To proceed: the same remarks apply to all other fruits, and, after all that has been said, written, or practised, we are persuaded that these things are as yet in their infancy. There is, perhaps, more room for real progress in fruit culture than in any other branch of gardening; and it is to be anticipated (according to the common order of things) that the writer of the fruit article in *THE COTTAGE GARDENER* of half a century hence will smile heartily at our present lubrications. So be it; we are but links in a chain of which that very learned personage above alluded to will, no doubt, consider himself as the terminating one.

As preliminary remarks, it may be observed that it is not very convenient to the classes to whom we offer advice to take up and replant a select lot of fruit-trees which have been planted some four or five years, and which, instead of producing the owner abundance of fruit, have produced nothing but twigs. Cases like this, therefore, call for a plan which will cause but a small amount of labour, and, at the same time, assuredly give confidence that immediate bearing shall be the result: such, then, is root pruning.

We must now take into consideration the different circumstances under which we find fruit-trees; for it is not expedient to apply the same mode to all. The modification of the system is not so much dependent on kind as on circumstance. Those trees which are growing on marginal borders, and which frequently are connected with flower culture, cannot be reached in the excavating process with equal ease on every side. Supposing, however, the flowers, or it may be vegetables, to stand in a line parallel with the walk or line of trees, the roots may be at least reached on two sides—those, we mean, at right angles with the walk, or general line of fruit-trees. Here, then, they may be attacked, and our practice has always been to excavate a trench as deep as we can discover the least trace of a fibre: indeed, we generally go deeper (more especially if we think the tree possesses tap roots), for whilst the trench is open it is comparatively easy to search by degrees beneath the very bole of the tree, and to cut away all those which have penetrated into ungenial soil. We do not lay so much stress on a *precise depth* for the roots to ramble, as on the character of the subsoil; although we do think that wherever ripening of the wood becomes a matter of import-

ance, that from half a yard to two feet in depth of a sound soil is better by far than any greater depth.

Tap roots should by all means be removed; but let it be understood that, for the removal of such powerful agents in obtaining food for the tree, an equivalent in degree must be provided. We name this, by the way, in order to prepare the minds of those who are merely in the hornbook of gardening, to expect that such severe operations cannot be practised with impunity; in fact, that something more than a merely mechanical meddling will be necessary: a little of what is termed a "mind" must both precede and follow the operation.

We will suppose, then, a trench or cutting excavated to the depth alluded to, and of a spade's width: every root, of course, in the line of trench cut away: these are severe measures; but fear not—such are necessary at times as well in the vegetable as the animal kingdom. After this proceeding, a fork or some pointed tool should be used to dislodge a little soil from the surface of the cutting on the side next the tree, in order that the mangled points may be pruned back. This becomes expedient in all cases of root mutilation by blunt tools, because no one can tell but that a gangrenous character may be superinduced, especially in roots of some size (and, of course, age), such being slow in healing in proportion to their age. Let every point be pruned back with a sharp knife an inch or two, cutting, where possible, back to where a rootlet or bunch of rootlets branch from the root in question.

When the case of grossness is excessive, we have sometimes made a practice of leaving the trench or excavation empty for many weeks; indeed, in the case of strong or adhesive soil, we have at times left it open until May or June, or, in other words, until the drought of the spring has penetrated the mass. The practice, however, is an unsightly one, and, as there is no *absolute* necessity for it, we lay no particular stress on this proceeding.

In filling up the excavation, advantage should at all times be taken of introducing maiden or fresh soil; and, whenever such materials can be commanded, we advise using rough turfy soil of a loamy or sound character. *Sound* is, indeed, a somewhat indefinite term, and we dare not digress so far here as to enter into a definition of it. We intend shortly to enter into the question of loams and other soils, seizing the period for that purpose when more encyclopaedic routine is at its lowest point. The economical improvement of the staple of soils is a question affecting more or less, most of our readers. Much has been written about manures, but little about mechanical texture, the very key-stone of the arch.

If loamy soil cannot be obtained, it is easy to exchange the excavated soil for any fresh ordinary garden soil at hand; and, indeed, the mere kitchen-vegetable bed adjoining, if not too rich in manures, may be substituted. Whilst speaking of manures, we may observe that none of any kind may be introduced amongst the soil in filling the excavation: some persons recommend and practise it; we, however, do not like "blowing hot and cold;" we consider the process inconsistent, especially since any amount of vigour may be imparted by surface dressings or by liquid manure.

In concluding this paper, we may remark that it is not material that *all* the sides of a tree should be root pruned equally: either one, two, three, or the whole may be dealt with accordingly as they can be got at. Nevertheless, the smaller the number of sides pruned the more severe the operation must be. We,

of course, prefer cutting all round equally (not but that the cutting of any one root on any given side, equally or nearly so, affects the whole system of the tree); but cutting all round is a more satisfactory mode, as throwing the volume of roots into a determinate form, and, of course, placing them henceforth under a more definite control. Another argument may be adduced in its favour. In cutting all round there is less occasion for such very severe mutilations; for, be it understood, that although root pruning is of great use under circumstances of over-luxuriance, we must still class it as a necessary evil.

In a subsequent paper we will advert to the different kinds of fruit-trees—for all must not be cut alike—and giving rules for cutting as to distance; such being regulated by the amount of over-luxuriance, the age of the tree, the character of the soil, &c., all of which exercise important influences.

R. FERRINGTON.

THE FLOWER-GARDEN.

BULBS: THE HYACINTH.—Now is the time to commence planting bulbs of all kinds that are hardy and intended to bloom early. The hyacinths from Holland this year are, judging from those we have seen, fine healthy bulbs. Such of our readers as intend to purchase we would advise to lose no time in giving their orders. In this trade, as in any other, the rule is generally to serve those that come first the best; consequently, the stock is often all picked over, and the worst roots left for the slow-paced customer. This is the case more especially with the hyacinth. In other roots, such as narcissus, crocus, jonquil, snowdrop, &c., there is not so much difference in the roots. It is, however, desirable to have even these kinds as soon as possible, and then you can take advantage of any fine weather that may occur, and put them promptly into the ground.

There are three ways in which the hyacinth may be grown, all of which are familiar enough to our readers. First, in the open air in beds, to bloom there; second, in pots, to bloom either in conservatories, greenhouses, or in windows; third, in bulb-glasses in water, to bloom in windows. By all these ways the hyacinth may be bloomed very successfully with a moderate share of right attention bestowed at the right time. We shall try to describe the best way of carrying out two of these operations.

Planting in the open air.—The Dutch grew immense quantities of these bulbs, and have the trade nearly all to themselves. Large fields in the neighbourhood of Haarlem, and other Dutch towns, are devoted to their culture. The soil of Holland is, as is well known, of a sandy nature, low, flat, and subjected to the overflow of the sea; in fact, most of the country has been reclaimed from the ocean. The soil there is formed of the mud, sand, and other deposits of the sea. In this soil those fine bulbs are produced which are imported every season so largely into this country. In order, then, to flower them as fine, and continue their roots in the same state of perfection, we must, as far as possible, imitate our neighbours' soil. Such of our readers as live near the coast can easily procure some sea sand, but to those who live at a distance the expense of carriage would be heavy. River sand in the interior might be used, and we think with nearly as good an effect. Vegetable mould is also a necessary article to mix with the sand; and lastly, some good light loam: the proportions to be in equal parts. Mix

them all well together in sufficient quantity to fill your bed. Remove the old soil to the depth of 18 inches; lay at the bottom a layer of rubble, or small pebbles sifted out of the sand; cover this with some turf, and upon that place a thin layer of very rotten cow-dung, or decayed hotbed manure; then put on that the compost, raising it at least four inches above the level. The bed would have a neater appearance if edged with slates, or even narrow boards. The bed should be in such a situation as to allow room for an awning of canvass being stretched over it, either over a frame raised high enough to allow the spectator to walk under the awning, or at least to allow hoops being bent over the bed at such distances from each other, and at such a height, as will keep the covering from touching the flowers. The soil should have time to settle a little previously to planting. When that has taken place, proceed to plant the bulbs.

Mix the colours regularly, so as to be in harmony with each other. The best way to plant them is, with a spade, to open a trench straight across the bed four inches deep; then lay a board to stand upon, and put each bulb, as you have sorted the colours, into the trench, six inches asunder. Fix them firmly in their several places, pressing each down a little: the head of each bulb should be just three inches below the surface. Having planted the first row, cover it up with the soil thrown out in opening the trench, and level it neatly. Then proceed to open the next trench eight inches from the first; plant the bulbs in it, and so on till all the bulbs are inserted.

In this state let them remain till the frost of winter approaches. Then spread equally over the bed about two inches in depth of spent tanner's bark. This will shelter the roots from the severity of the weather, and may be allowed to remain till the blooming season is over; it will have the effect of keeping the soil moist during dry weather in spring, and encourage the plants to make fine foliage. This is a most desirable point to attain, for without a strong growth and fine luxuriant leaves the bulbs will infallibly deteriorate, become smaller, and after a year or two will neither grow nor flower satisfactorily. We have in former Numbers pressed upon our readers the great importance of preserving the leaves of all kinds of bulbs in a fresh vigorous growth till they naturally begin to turn yellow, fade, and die. If there is one kind of bulb more than another that requires this care, it is certainly the one now under consideration.

As soon as the leaves are in this decayed state, take them up immediately, being very careful not to injure the bulbs in the least. Preserve as many of the roots as possible. Lay the bulbs, with the old leaves and roots adhering to them, in a shady place for a fortnight, and then remove them into the full sun until both roots and leaves are quite withered. These may then be carefully dressed off, and the bulbs put into drawers, or hung up in open canvass bags. Whichever way they are stored, the room in which they are kept should be as cool as possible, and quite out of the reach of wet or damp. Examine them from time to time, and remove any coats of the bulbs that may be mouldy or decaying. Some bulbs may be rotting away entirely; all such should, as soon as discovered, be thrown away, to prevent them infecting the sound ones.

These instructions may appear to some to be too minute, but it is by such close attention to every point of culture that the cultivator of any kind of plant succeeds in bringing them to the utmost amount

of perfection. We can see no reason why hyacinths, with proper soil and careful management, may not be grown quite as fine as those in Holland, especially on the south coasts, on flat, alluvial, sandy plains.

Hyacinth in Pots.—The same compost nearly as we have recommended for the beds of these plants will suit well for their culture in pots, namely, loam, sea or river sand, and very decayed cow-dung, instead of vegetable mould, in equal parts. Choose the pots as deep as you can get them—rather more so in proportion to the width than the usual shape. The size known as small 32s is the proper one: these are about six inches wide at the top. Pots, indeed, might be made deeper on purpose for these bulbs, and would be more suitable on account of the roots not spreading, but running straight down.

Having the bulbs, compost, and pots ready, proceed to perform the potting; place a large piece of broken pot over the hole at the bottom, and then a few smaller pieces upon it; put upon them a little moss; then throw in a little soil, and press it firmly down with the hand; add a little more, and press it again; and so on till the pot is nearly full, or just full enough to allow the top of the bulb to be level with the edge of the pot; then place it in the centre, and put soil around it, pressing it very firmly. If you do not do this, the bulb will be apt to rise up when it pushes forth its roots. The reason why we recommend this pressure of the soil is to prevent the roots descending too quickly to the bottom of the pot. The whole being potted, choose an open situation in the garden, and form a bed of sufficient size to hold the stock; dig out the soil deep enough to allow the pots of bulbs to be below the level. Place them in it in rows. To preserve the names, have wooden labels of sufficient length to stand up above the covering of the bulbs. Put these labels in before they are covered, to prevent mistakes. Work in amongst the pots part of the soil, to keep them firm in their places. They may be placed so thick as nearly to touch each other. When they are all put in, cover them over with decayed tanner's bark, or coal-ashes, two inches thick. Now, all this ought to be done before the end of October, at the latest. In this situation they may remain till the time they are wanted to be forced into flower. Prepare a gentle hotbed if you have no other convenience. About the middle of December will, for all ordinary circumstances, be quite early enough. By that time the bulbs will in their quiet situation have formed a considerable quantity of roots, and will be quite ready to push forth their beautiful fragrant flowers to ornament the greenhouse or window at a time when flowers are doubly acceptable. Place those selected for the first batch in the hotbed as soon as the heat is moderated, putting them upon a coating of ashes. Cover the frame at nights, and give air during fine days: even in cold weather it will be desirable to tilt the lights up behind a little every morning, to allow the steam and damp air to escape.

As the plants advance in growth, give more air and less covering, in order to give a stout strong growth and full green leaves. Put in others in succession from time to time, and then you will have bloom from February to May.

EVERGREENS FROM SEEDS.—The best time to sow seeds of evergreens is the spring; some, as the *holly*, will lie in the ground for two years without growing, therefore care must be taken that the ground is not disturbed for that time. The berries of the *Portugul laurel* and other kinds will soon be ripe; gather them

* This should have been inserted last week at p. 321.

and keep them in sand till the spring. The berries of the *arbutus*, or strawberry-tree, have the seeds adhesive to their outside like the strawberry, consequently they will require separating from the pulp. Crush the berry of each gently; soak them in water, stirring and rubbing them with the hand; drain off the water and the dissolved pulp, and place the seeds upon paper or canvass to dry, and store for sowing at the proper season. The *arbutus* had better be sown in pans under glass in frames, as the seedlings do not come up freely in the open air. Seeds of the rarer kinds of conifers had better be raised in a similar manner, such as *Araucaria caeclsa*, *Cedrus deodara*, *C. Libani*, and most other foreign species. Evergreen oaks and magnolias require sowing in the open air in beds, and the autumn following the seedlings to be taken up and potted for placing in frames or sheltered borders through the winter. We might dwell upon this subject for several pages, but we think we have said enough to enable our readers to raise this ornamental division of shrubs in any quantity they may think fit.

T. APLEY.

GREENHOUSE AND WINDOW GARDENING.

DUTCH BULBS.—About the end of August the nurserymen tell us by their advertisements that they "have just received their Dutch bulbs," and, as a matter of course, they are ready to execute our orders. For many years I have been endeavouring to procure a few early hyacinths about the beginning of September, so that I might prepare them to flower early in December, but to no purpose. Whether the Dutch growers or the English sellers are to blame for this I cannot say, but one thing is certain, and that is, if you want hyacinths to pot by the first of September, you must either take your own old bulbs or go to Holland for a set of fresh ones. The Dutch, who understand these roots much better than we do, pot all the hyacinths, which they bloom before Christmas, during the month of August, beginning about the second week of the month. A full account of their practice was given by one of themselves some years since in London's *Gardeners' Magazine*, so that there can be no question at all on the subject. But in England we may whistle for them till after the middle of September. It is true we are set down as rich people, who can well afford to destroy a few paltry roots annually, but that is not the worst of the story. Many gardeners, and their employers too, would not care a fig for the destruction of a few hyacinths, provided they could get them into a good early bloom the first season, say by the first of December. However, as agitation is now at a discount—and long be it so—I suppose it is of little use to grumble; we shall be all right some day or other. Last year I put some hyacinths in fresh moss, rather late in November, to try how much earlier they would flower than others put into soil at the same time and under exactly the same treatment. Those in the moss were in flower ten days before the others, but this might be owing to the sorts, for they were from a mixed sample without names; but, after allowing the benefit of this doubt in their favour, I still think that any of the sorts will come sooner in fresh green moss, and I know they are much easier managed in moss than any other way; and I ought to know something about them, for, not to go farther back than last season, I flowered 600 hyacinths

in pots, and nearly as many without pots, but as they were all in the flower-garden, I must not anticipate my own removal hence by saying more about them till I am fairly ousted from my present snug berth, from which, as the truth must soon be known, I am about to be turned out, to write about flower-gardening in the next volume, when all the flowers are nearly gone! However, I am now writing in my old department, and it is high time to pot all the forcing bulbs for the earliest crop, but any time between this and the middle of November will suffice to get in those for late spring use. I think I could give fair lists of the earliest and best kinds, yet I prefer trusting to the nurserymen for them, as they buy them from different growers, and every grower knows his own sorts best. They can always command a highish price for very fine sorts and for new ones, but their mixed kinds without names are as cheap as possible, and most of them are very good if well treated, but, like many other plants, the cultivation makes an essential difference. Ample directions were given in the first volume about the potting and after-management of these bulbs, to which I refer the reader. *Crocuses* are the worst things to force, because, if they are excited too freely, they give nothing but a bunch of leaves. They do best if they are in the borders when taken up about the end of November or later, as by that time their flower-buds are well up, and if they are removed in lumps of earth, and the interstices just filled up when set in the pots, they take no hurt. There is a beautiful little *iris* which flowers naturally early in the spring, and is easily forced; it is called the *Persian iris*. The common double and single *daffodil* from the fields flower two months earlier with a gentle heat, but they should all be potted in October in some light sandy mould, if you prefer that to moss. One seldom sees the *snowdrop* forced, but it will answer just as well as the crocus; and so will the *snowflake*, and, indeed, all the hardy bulbs which flower with us in the spring. Although I use the common expression "forcing," there need be no real forcing at all; and if I say *assist* them by a gentle heat, that does not convey the meaning much better. If our September weather, on the average of seasons, were to continue through the winter, it is very likely these spring bulbs would flower with us in February; and, by imitating the mild September weather in-doors, we call it forcing.

WINTERING CUTTINGS.—One of the most pressing questions put to us at present is, "How am I to keep my cuttings of such and such plants over the winter, having neither greenhouse nor pit?" This is the pith of many letters closely written over four pages of post paper. Now, the labour we undergo to read this mass of useless scribbling is about one hundred and twenty-five times more than that necessary to give the answers when we can make out what the meanings of the queries are. I am quite sure, however, from the tone of all the letters which I have seen, that all this extraordinary trouble is given from an entire ignorance of its existence, and editors are always so good-natured that you hardly hear a complaint from them; but it is different with a labouring man like me, and a cottager too—and a beautiful and comfortable cottage, I am thankful, mine is—and, moreover, my motto being that I had "undertaken to instruct the uninitiated," I shall just try and instruct cottagers how to write letters. We never care about the style of hand-writing, if it is only plain enough, and the spelling gives no trouble; we like phonetic, or spelling according to the sound of the word, as well as any other; errors in grammar are also got over with

little trouble. That being settled, I shall now tell how I used to begin my first letters thirty years ago, and I find there is little improvement since.

"Dear Sir,—I write you these few lines to let you know that I am in good health at present, hoping and wishing this will find you the same. You must not think that I have neglected you, although I have not written to you for a long time, for which I sincerely ask your pardon, &c. &c."

At this rate the first two pages of my letters were filled; the next page would hardly hold all the news of the parish, and there being no envelopes in those days the top and bottom of the fourth page could hardly hold the main subject of the letter, which might only be to ask the loan of a book; but as it was then considered unfriendly to send clean paper something must be said to fill it up. All this is not a whit improved since among the labouring classes, at least those of them who write letters to *THE COTTAGE GARDENER*; and, for this reason, that they do not know better. Therefore, if I can explain to them the true spirit of letter-writing, it will save them a great deal of time and trouble. If the cottager could see many letters which we receive from educated persons he would be astonished how these include so many questions in so few words; but I shall give a specimen or two, and I would earnestly entreat our cottage readers to try and write in the same way. This is the usual way:—"Sir, will you be so kind as to answer the following questions, and oblige one of your subscribers, D. B." Then the questions follow, and each is numbered thus:—"1. How would you suggest to winter a lot of cuttings? I have neither a greenhouse nor pit. 2. Is it more safe to pot large fuchsias and scarlet geraniums than to put their roots in sand when I remove them from the frost, and should I cut off any of their roots or tops? if so, how much? 3. Would it be safe to put in cuttings of these roots or tops so late? 4. Would summer roses root from cuttings put in now? 5. What are the best evergreen climbers for a poor, sandy, soil on a dry bottom? 6. What is the best way of killing the thrips?" Now, here are six full questions which no one can misunderstand; they take up very little space, and can be read in one minute. Again, it is considered very selfish to ask an editor to answer in the very next number; all editors wish to oblige their subscribers, but how can they if their space for answers is filled up before your letter reached them; or suppose an editor does not trust his own judgment or memory sufficiently to answer you: he knows his position is too responsible to reply at a venture, and he sends your letter to another, and, perhaps, that one will have to send it to a third party in order to be quite sure of a correct answer. All this takes up much time, and is very expensive to the proprietors; but they put up with it patiently in order to render *THE COTTAGE GARDENER* a first-rate authority on practical gardening; for, after all, that is the only sure way of getting a great number of people to buy it, and without a very large sale they could not carry it on. It has attained such a sale, and the knowledge of the good it is doing, added to the kind feeling with which its readers have received our instructions, have given me a zest to go on with it for another year, but in another department, and all that I can promise is to write in still plainer words if I can; and whoever takes my place in "The Window and Greenhouse department," I hope he will write much plainer than I have done, for that is the main point, but a very difficult one to keep close up to. I feel that I ought to apologise for thus taking

up so much room, and I promise to make up for it soon; but having gone through those rough stages myself, I am certain my plain and well-meant advice will be useful and well received by my poor brethren; and I know personally that some of them wish to ask advice at our hands, but do not know how to set about it.

TRANSMITTING FRUIT-TREES TO THE COLONIES.—In addition to what I have said about seeds for emigrants, I am asked to give advice about preparing and packing fruit-trees for long voyages. All the experience that I have had on this subject is not much, but I have sent grafts of fruit-trees to India, round the Cape, and some of them answered as well as these things generally do. On the other hand, I have had a great deal to do with unpacking plants of all sorts from different parts of the world, and I have always found those packed in very dry saw-dust preserved the best. When the French blockaded the Mexican ports, about a dozen years since, there were some cases of plants detained at Vera Cruz nine months, which I afterwards unpacked in London, and many of the woody plants were still alive; and I had given directions to a botanical collector to pack cases of plants at Cumana and Caracacas, on the Spanish main in South America, both in Indian moss (*Tillandria usneoides*) and dry saw-dust, and those in the saw-dust generally arrived in better condition, although at that time we all thought "the paste," as they call the Indian moss, was the best material to pack in. Therefore, if I were packing fruit-trees for a long journey, I would certainly run them very close in saw-dust previously dried on a kiln, if possible, for, if the least damp or fresh, it would be liable to ferment and spoil the whole on arriving within the tropics. If any one of our readers has had experience in sending out such things in a different way, which proved successful, he could not confer a greater favour on us than to communicate the particulars. Meantime, I would strongly advise that fruit-trees destined for voyaging to places far off, be close pruned at the end of September, and not removed from the soil for a month afterwards. During that time, a considerable quantity of the rising sap would accumulate in the wood, and swell out the buds; the edges of the wounds would also heal over in some degree. This is all that our art can do in the way of preparation, and it should never be omitted. We might also learn a good lesson at home, if we were to prune fruit-trees, standard roses, &c., early in October, and not transplant them till six weeks afterwards, and I am very confident the worst point, at present, in all our operations is to take up a woody plant, prune it, and then plant it immediately. Ten years hence, none but the most ignorant will think of such a thing. It is like turning with an empty pitcher from the well, with this difference, that a tree whose cells or cavities are brimful of sap is as easily carried as one nearly as empty as the said pitcher. Let us not send empty pitchers to Australia, at any rate, now that we know how best to fill them. It is almost beyond the mark to say that the parts where the graft or bud was inserted should be sound and healed over, that the trees should not be widely spreading, but as upright as possible, for the sake of packing close, and that dwarf ones take up much less room. Tall standards, three or four years old from the graft, however, would carry as well as, and, perhaps, better than, dwarf ones. Besides, they would have this recommendation on reaching their destination, that they would be ready to plant at once in the new orchard. Before

packing, all the small roots should be cut off, and the small ends of the stronger ones. I have heard of trees being smeared over with different compositions to exclude the air from them, but you might as well put a black plaster on a man's mouth and nose, and send him to Botany Bay in a sealed bladder, as do that. In packing, you cannot put the sawdust too close together, as the pitching of the vessel will be sure to try its closeness severely. The case should be of boards an inch thick, and, if dwarf trees are packed, the case should be sufficiently long to admit two trees in length, then their roots might meet in the centre. If they leave England for Australia any time in November, or early in December, they will cross the line during their natural winter, always the best time for this trial, and they will land in the autumn of that country, which corresponds to our spring, and that is still in their favour, as the Australian winters are generally as mild as our springs, the trees would have a long spring to recover slowly. They should be planted as soon as possible, and very close together for the first year; staked, and from the ground up to the bottom of the branches they should be covered with moss, if possible, and tied round and round with bay-bands, or bands of some kind, and every two or three days this covering ought to be damped. This is the way we succeed here with invalids, but, of course, the bands must be undone occasionally to see if buds are pushing under them. Fuchsias headed down, dahlia roots, and many other things of that kind, might be sent with them.

D. BEATON.

HOTHOUSE DEPARTMENT.

HEATING.—We lately directed the attention of those building new houses to the slope or angle of the roof, and the preparing of borders for the plants to grow in; we shall now say a few words, in passing, upon heating. In our younger days there was little besides the smoke flues—anything in the shape of steam or hot water was a world's wonder. The old flues are not yet altogether to be despised; in small houses there is something to be preferred about them. I have had a fair share of practice among them, as well as with hot water, and found that, if sound and well constructed, the one was as easily managed as the other; while the saving of fuel, so much talked about, by the latter, is often more a saving in theory than in practice. If you intend constructing a flue, see, for ensuring a draught, that the furnace is from a foot to 18 inches lower than the opening of the flue. Form the bottom and top of the flue of paving tiles, and the sides of brick, set in lime putty; place hollow tiles, or bricks, or pans of zinc, on the surface, so that when supplied with water the air in your house may be moist in proportion to the heat it contains. Raise the bottom of the flue from the floor by piers of bricks; and if you wish to equalize the temperature plaster the end next the furnace, and have the other end unplastered. Hot water, however, is fast superseding all such precautions as the last, being such a good carrier of heat that the end next the boiler is seldom much warmer than the end farthest from it. The cleanliness of the system, and the absence of all sulphureous exhalations, even when a leakage takes place, are desirable recommendations. To discuss the various modes of heating by hot water pipes would require pages; a few things only must be glanced at. When the heating apparatus is only wanted occasionally, a

small boiler and small pipes will be the most economical. The flow pipe should have a slight ascent to the farther extremity, and the return pipe a similar descent to the bottom of the boiler. The number and extent of pipes must be regulated by the surface of glass, the cubical feet in the enclosed space, and the temperature required. When 60 degrees of heat are required, which is enough for almost any house in cold weather, Mr. Hood divides the cubic measurement of the enclosed space by 30, and the quotient will give the number of feet of four-inch pipes sufficient to heat it, when the outside temperature is at 10° above zero. When the temperature required is from 70° to 75°, he divides by 20; and when from 75° to 80° are wanted, he divides by 18. If three-inch pipes are to be used, then a third must be added to the quantity, and so on with other sizes in proportion: an allowance must be made for very exposed places. The large stove at Chatsworth, 60 feet in height, is heated at the rate of one superficial foot of pipe to 30 feet of cubic air, and answers admirably. Mr. Hood has also ascertained that $3\frac{1}{2}$ square feet of surface of boiler will be sufficient to heat 200 feet of four-inch pipe, and so on in proportion. When a continuous regular heat is required the furnace should be so large that part of the fuel may rest in recesses at the side of the bars, and the vent for the flue should be narrow to moderate the draught; no air should be admitted except by the bars, unless a little by a revolving opening in the furnace door, for helping to consume the smoke. If you resolve upon heating with pipes, it will be judicious to have everything settled beforehand. Hot water engineers, though often abused, are just as honest as other people; but frequently after the contract has been made and the work commenced, what seem trifling alterations are insisted on by the proprietor or gardener, and then there is dissatisfaction when these come to be paid for in the shape of extras. The chief objection to heating by iron pipes is their first expense, and having strange workmen upon the premises, though for the latter there is no absolute occasion, as the matter is simple enough. Hence the tank system—the tank being formed of iron, slate, brick, and cement, and even of wood, and covered with slate, wood, or iron; the open gutter system, with close coverings when necessary; the Pohnaise system, an improved modification of the *Killogie* of Forsyth—too much praised, and perhaps too much blamed, as the principle may be adopted with advantage in many houses as an auxiliary;—have all been tried with various degrees of success. But instead of leading you among such ticklish subjects, we prefer this week giving an account of a most economical arrangement of plant-stove, forcing house, and greenhouse, heated not merely by one boiler, for that is common enough, but by means of one small wooden tank, supplied with heat from a small conical boiler. Iron pipes about a yard in length are fixed to the boiler, and to these lead pipes two inches in diameter are attached for conducting the water to and from the tank. The lead pipes do away with the expense of casting knees and bends, and various joints making. The plant-stove and forcing-house, for it answers both purposes, is sunk below the ground level.

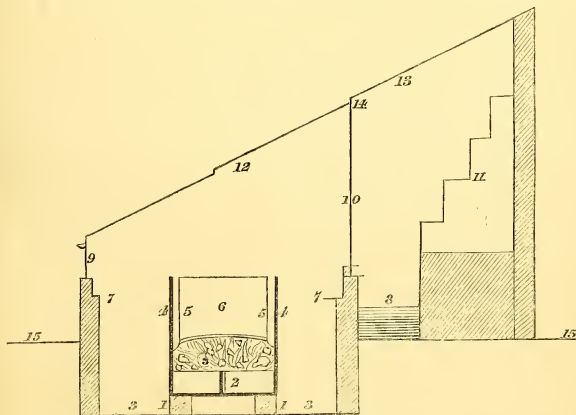
The greenhouse is at the back of the stove, separated from it by a glass division of sashes, and is raised a little above the ground level. These sashes are made to slide past each other, but this is only done when more heat is wanted in the greenhouse than can be radiated from the glass division merely. All the artificial heat, therefore, for both places is

derived from the wood tank in the hothouse. This tank is raised nine or twelve inches from the floor upon piers. It is formed of deal two inches thick, and as carefully made as if intended for a brewer's cooler. It is $3\frac{1}{2}$ feet wide, divided in the middle, and is a foot in depth, but the able and intelligent gardener says that six or eight inches would do just as well. It is covered with slabs of slate half an inch in thickness. On the top of the tank, lengthwise, are set several boxes of various heights, and each from two to three yards in length, made of deal $1\frac{1}{2}$ inch thick, and unpainted. They, as well as the tank, have been in use for several years, and look as fresh as ever. In the middle of each box, binding the two sides together, an iron rod passes from side to side, screwed firmly to an iron plate with nuts, and this prevents all bulging. Short spaces of about a foot in width intervene between the boxes, which not only admit of many operations being more easily performed, but the heat from the slate radiates freely without interruption. Inside of the strong box, and separated from it two or three inches, is a slender one of half-inch boards, the use of which is to separate the earth, &c., from the outside box, and allow the heat to rise from the slate. To give every facility for this,

the slate is covered to the depth of a foot with clinkers, brickbats, charcoal, &c., which not only allows the heat to rise, but acts as drainage: by pouring water between the two boxes you may have what moisture in the atmosphere you require. My friend, who has the charge of this house, grows in it rhubarb and sea-kale in winter, cucumbers and melons in summer; preserves and grows some good stove plants, and several of the best orchids; grows geraniums, gloxinias, achimenes, &c., second to few or none; forces hardy shrubs, roses, bulbs, &c., for the conservatory; and speaks of trying vines and peaches in pots, where they will succeed admirably; or a plant or two might be grown up the rafters with advantage. He can make dry stove, moist bark-bed stove, and forcing house, all together, or all in turns; while in the greenhouse he has many of the best geraniums and calceolarias of the day, with other desirables, in fine health and vigour. The sketch of the end section of the house is merely from memory, but the main points are correct, roughly drawn to a scale of four feet to an inch.

These small tanks have been used most successfully as propagating houses by a neighbouring nurseryman.

R. FISH.



1. Piers on which the tank rests.
2. Tank made of wood, covered with slate.
3. Clinkers, brickbats, &c., above slate.
4. Sides of boxes, each of which acts as a pit.
5. Sides of inner box, kept separate from outer by slips of wood; inside next the earth, &c.: tarred.
6. Earth—first rough, and then finer above the rough brickbats, &c. When bottom-best is wanted for plunging, tan or sawdust, or even sand, is used.
7. Shelves for plants.
8. Passages.

9. Front glass which opens outwards.
10. Division of glass between the two houses; the slides sliding past each other.
11. Stage in the greenhouse.
12. Every alternate light of these pulls down.
13. Every alternate light, opposite the fixed one on the lower house, also slides down.
14. The lights in the greenhouse which do not slide are raised at the front by brackets toothed, and thus abundance of air can be given.
15. Ground level.

THE KITCHEN-GARDEN.

CABBAGES.—The best varieties for coming in early next spring should now be planted in full crops; and if the ground has not already been well manured, trenched, ridged, or dug, it should at once be done.

The ground from which the onion crop has been removed is generally considered the best for planting the early cabbage crop upon; and, if the plants are at first placed at a sufficient distance from each other, a row of good *coleworts* may be planted between the

rows of cabbage, as well as one more colewort between every two cabbage plants in the row, which will afford a good succession of young greens throughout the winter and early spring months.

EARLY CAULIFLOWERS.—The end of September and the first week in October will be found a good time for sowing this vegetable, if not already done, on a gentle bottom-heat. Let abundance of air be given both day and night as soon as the plants are up, taking off the lights entirely whenever the weather permits, and letting them be well tilted on both sides in rainy or foggy weather, so that a free current of air may be admitted. Stir the earth well about the plants, and occasionally, on a fine day, sift carefully a little dry dust amongst them. When they have made two rough leaves, prick the plants out into small pots or on a well-prepared soil, under glass, which should be close to the leaves. The plants need not have more space allowed than two inches apart from each other, and after they have remained some time, and have become strong and sturdy, a portion of them may be potted into suitable sized pots, and the remainder pricked out—some under glass, if it can be spared, and the rest under a dry wall, or on sloping banks, by which management a good supply and succession of cauliflowers may be secured from the middle of April until Midsummer, more particularly if the potted plants get timely shifts, and are turned out in seasonable time on a well-prepared warm border in early spring, and are also supplied occasionally with liberal soakings of liquid manure.

ROUTINE WORK.—Proceed carefully with the earthing up of celery, as well as cardoons, a few at a time, in order to secure the requisite supply. Continue to plant out *endive* in succession, and secure some of the earlier planted by placing them in open sheds, pits, or frames, in order to blanch them and protect them from rains and frosty mornings: the latter are often very destructive to *endive* when it has just about made its growth. The curled and close-growing kind is also very liable to be injured by the rains at this season of the year. *Lucks* should be well surface-stirred and supplied with liquid manure, and some of the most forward earthed up. *Lettuce* plants sown last month should be pricked out, and another sowing now made, inside a frame well sloped to the south, and on a rather poor but healthy soil close to the glass, for the glass is apt to draw them up if placed too high above the plants. *Potatoes* which are quite ripe, and ready for storing, should be taken up and sorted; storing those intended for culinary purposes by themselves, and the middling-sized tubers which are to be stored for seed by themselves; whilst the chits, or small refuse, as well as the diseased ones, if any there be, may be put by for boiling up for the pig; but the diseased part of the tubers should of course be cut out at once. With us the potato crops are this year abundant, large, and of the first quality, perfectly free from disease, which has not been the case with us for some years past. As soon as the ground is cleared, it should be at once dug.

POTATOES that have been stored away, either for culinary purposes or seed, should be looked over to see that there are no diseased tubers among them; although this is work for rainy days no time should be lost in removing the diseased and rotten potatoes. I was called in to look at a quantity (about 20 or more sacks) which were stored away, to all appearance sound, in an old dry cellar, in the last week of August and first week of September; but now several

diseased are to be found among them, and, occasionally, a rotten one or two. I advised them to be all looked over and the diseased taken away. I have about the same quantity of potatoes under my care, but have not seen a single specimen of diseased potato among them. I think and believe we were too quick for the disease to reach the tubers. Our earliest, which are *Looker's Oxonian*, and our latest, which are *York Regents*, were both very stemmy kinds, amongst which we saw slight symptoms of disease in the haum. In the other two sorts we grow, the *Herefordshire early purples* and the *Forty-fold*, we saw no disease even in the stems, but we found them all ripe enough to take up by the middle of August, and we then stored them away, as fine in quality as I ever saw, both in the heap for size and at the table for quality. They were nearly all autumn-planted, and those which were not planted in autumn were planted in February.

JAMES BARNES and W.

MISCELLANEOUS INFORMATION.

ALLOTMENT GARDENING FOR OCTOBER.

WE have now arrived at that period when, the growing principle being about to cease in most crops, means must be taken, and mischances anticipated and provided against, in order to preserve those valuable keeping or store roots which the cottager has secured by the sweat of his brow, and on which his winter's welfare principally depends. Now may the industrious cottager who has made the most of his over-hours (and who has employed mind as well as body in laying down sound plans, and economising the material at his command,) cast a satisfactory and rejoicing eye over his rows or beds of Swedish turnips, mangold-wurtzel, and carrots; and, with an honest exultation, feel proud that he has not passed so much valuable time lounging about lanes or roads, or what is far worse, wasting his health and his substance in the degrading beer-shop. Not that we would debar the cottager from a moderate quantity of wholesome beer; we merely mean, that by perseverance in the culture of his plot of ground, coupled with general habits of economy, he will soon spare a few shillings to purchase a tub of beer, if necessary; or, if not having to provide for a large family, to brew his own.

To commence our monthly advice, then, we may merely remark that the two great points during the rest of the autumn, on which the allotment holder must direct his attention steadily, are, first, the housing or storing his roots, as well as collecting and economising their trimmings; and, secondly, to get as much of the ground as possible dug deep, and thrown into ridges for a winter's fallow.

POTATOES.—That terrible complaint, so generally known as "*The Potato Disease*," has again appeared, but not, at present, to the extent that it had done by this time in former years; sufficiently so, however, to be very alarming, for who can tell but that next year it may again resume its old and virulent character, or even worse? Therefore, we most emphatically say to all, Let no supineness nor habits of neglect attach to the preservation of the seed. Let every one feel persuaded that some evil effects, either present or prospective, follow abuse, although such may appear to be trifling. Because the potato has been endowed by our gracious Creator with extraordinary vital powers in order to meet extraordinary

contingencies, is that to afford just ground for supposing that He has not, like everything else in the creation within the handling of man, stamped it with the impress, "Hitherto shalt thou go, and no further?" Our advice is, that when the disease in the leaves and stems assumes the character of rotting, gangrene, or mortification, that the potatoes be taken up as soon as possible. When, however, the stems are merely withering and dry, why then the haulm may be cut away and the potatoes left in the ground a few weeks, taking care to soil them over, adding four or five inches of soil. As seed potatoes will answer very well somewhat under-ripe, provided they be kept free from fermentation, we would in all cases take these up *before* the disease had destroyed the tops: better be under-ripe than diseased. We need hardly say that they must be dried as soon as possible, and kept dry; the drier the better, provided artificial heat has no part in the affair. We highly approve of what are termed "whole sets" for planting; indeed, we plant nothing else. These need not be any larger than a cob walnut, and should be selected with a rough skin if possible.

CARROTS.—If any carrots of the early sowings still remain on the ground, they should be taken up by the middle of the month at least. If injured by the grub, they may be removed some weeks sooner. Our practice is to commence cutting their tops by hand about the end of September, and cutting a few daily for the cow or pig until they are all gone. We cut them slightly *below* the crown, or "into the quick," as it is termed, for they keep much sounder this way if fermentation be avoided; and the tops thus cut form an excellent material for the pig. They may be piled, when thoroughly dry, in any outhouse; and if there be any bulk of them, a layer of clean sand, or charred material, may be placed amongst them in layers, in order to avoid fermentation. They may finally have some litter or old cloths placed over them, or even a layer of soil.

MANGOLD-WURTZEL.—All the tops of the mangold may be turned to excellent account by daily drawing some of the leaves, commencing the operation in the first week of October, as soon as the leaves begin to turn yellow, or become ragged. This occurs with the lower leaves first. By the end of the month all will have been pulled, and eaten by the cow or pig, and then, finally, the crown may be cut off, cutting slightly into the neck, but not so far down as in the carrot, for these are rather liable to rot. The crowns make excellent pig meat.

PARSNIPS.—There is no occasion to take these up until February, unless the roots or the ground are wanted. Our practice is to lay the manure intended for the next year's crop on the ground containing the parsnips, in the early part of November, spreading it over their crowns equally. This will thoroughly preserve them from frost, for they are a very hardy root. If taken up, let them be trenched out, manuring for the next crop as before observed. The manure will blend regularly with the soil, and, by trenching in ridges, the ground will only require levelling down for a crop in February or March. After taking up, they are stored away like carrots.

SWEDISH TURNIPS.—The tops of these may be cut and used up as the mangold, only, as they are a much harder root, their cutting need not commence until the mangold tops are all used up. Both these and the mangold are kept in the highest preservation by selecting a high and dry bank, if possible, in a shady situation. The ground should be so high that no water can possibly stand on it; and here

they may be piled about four feet in height, by a yard in width at the bottom, finishing off at top like the ridge of a house. It is well to place a chimney here and there to suffer the heat and steam to escape, at least for mangold; some place draining tiles perpendicularly, others a straight bundle of clean well-drawn straw, but a huge stump, a foot in diameter at top, and tapering to the other end, placed with the point downwards, will make a very good issue for steam, by placing them at about six feet apart during the piling process, and drawing them out when the work is complete. For mangold, the whole must be thatched; but for Swedes, a good topping up with rough litter will suffice.

JERUSALEM ARTICHOKE.—There need be no concern about these. They keep better in the ground than any other way, and no amount of frost seems to injure them.

BEANS, PEAS, &c.—If any old rows remain, they should be drawn up; and if any seed remains on thoroughly ripe, it may be put by for spring sowing. Unless, however, it is very perfect, such is not worth saving, but had better be given to the cow or pigs. The sticks must be piled up in a dry corner, not thrown down.

SCARLET RUNNERS, DWARF KIDNEY BEANS, &c.—These should be closely gathered now, for fear of frost; all overgrown pods may be given at once to the pig.

CABBAGES.—Let all decaying leaves be frequently collected; those even only slightly green will do for the pigs, the others for the manure heap. The cabbages sown in the middle of August will now be getting strong plants; if any ground is intended to be planted with cabbage, it should be prepared forthwith by digging some manure in. The largest from the seed beds may be selected, planting them according to the kinds: the York, Matchless, Noupaveil, and other small kinds, at sixteen or eighteen inches between the rows, and twelve inches between the plants; and the Sugar-loaf, Battersea, and the larger kinds, at three inches more apart each way. What remains in the seed bed should be planted thickly in store beds to remain until spring.

BROCOLIS, SAVOYS, GREEN KALE, &c.—Nothing is requisite for these but soiling up and a freedom from weeds. When any are cut for use, the side leaves must be assiduously collected for the pig or cow.

COMMON TURNIPS.—Those sown late will now require a little thinning out and hand weeding; if early crops are becoming overgrown, they may be pulled, their heads cut off, and pitted like potatoes, but *above* the ground level.

LETUCE AND SPINACH.—If any of the summer crops remain, let them be used up forthwith, and the beds whereon they grew dug in ridges, to sweeten for spring crops. The pigs will consume all these things; the superior meat being given to the fattening hog, and the rest to the store pig. If a bed of lettuces to stand the winter was sown in August, the plants must be pricked out as they get large enough. Let a raised bed be formed six inches above the ground level, and "prick" out the plants two inches apart all over. When they are frozen slightly, and *not before*, strew a little long litter over them, and keep them from thawing as long as possible. When uncovered of necessity, do not take the litter entirely off; the sunshine even of winter does much harm coming suddenly upon them.

NASTURTIUMS FOR PICKLING.—These are impatient of the least frost; if, therefore, any remain on the plants, pick them immediately, or they will be lost.

RED CABBAGE.—This makes the best pickle when it has endured a little frost. About the middle of November is a good time to pickle the general stock.

ONIONS.—Let these be examined at times, more especially if not roped, and in a damp place. Indeed, they have no business in the latter situation. Onions will endure much heat, but not much damp. They will even succeed well in a warm kitchen until past Christmas, when they should be removed to a dry room without fire. Onion seedling beds sown in August must be thoroughly weeded.

TRENCHING AND RIDGING.—Having now, we believe, run over the chief of the cottage garden or allotment crops, we may conclude our monthly labours by a little advice touching the general economy of the allotment. In the first place, let us again urge the vast importance of deep digging and ridging all spare plots, rows, or beds, be they where they will. The frost, even by its mechanical action on the soil, is most highly beneficial to the soil; it is worth many ploughings and hoeings, accomplished, as such are, very frequently under a damp atmosphere, or improper state of the soil. Besides this, the *chemical action* of frost is of no mean importance: by the free admission of the atmosphere many crude and sour materials are decomposed, and rendered soluble by the returning warmth and moisture of spring; besides which, it is well known that the destruction of insects or their larvæ by frost is very considerable.

CLEANING UP.—One general cleaning up or gathering should take place, if not already done. All refuse vegetable tops, weeds, &c., for which no other use can be found, should be scraped together in a convenient spot and burnt, or rather charred, for there is not so great a waste of material in the latter. Every hedge which has been neglected should be clipped, or dubbed, and the neighbouring ditch trimmed in order to get together much material, and to leave the plot systematic and neat for the winter. This is the way to get a good character, and a good character is power; this is the way for a man to increase his comforts and raise his condition; we may also add that it is the way to rear the cottager's children in habits of forethought and systematic good order, and to make them at once their "country's pride," and a blessing to their own families when their rustic sires shall be gathered to their fathers. Those who live near commons, or wastes, where gorse, fern, and other rampant vegetable matter exists, would do well to chop off or pare a large quantity of these materials to add to the heap for charring. A cart load or two of charred remains, kept dry through the winter, will be found of immense service to introduce with the root crops next March. A very moderate amount of manure will suffice where plenty of charred material can be obtained; and the chimney soot should at all times be carefully added to the heap, and blended with it.

The cottager will do well to bear in mind the main principles of preserving all his store roots; for the same apply to all, slightly variable in degree; they are as follow:—

MAXIMS.—First, prevent sweating; second, keep out wet; third, keep out frost; fourth, prevent the root growing. To prevent sweating, openings may be left at the top of a pile of roots, or when the pile is half built a little clean dry straw in bundles may be introduced. To keep out wet, thatching or careful covering may be adopted. To keep out frost, use extra covering in severe weather; and to prevent the roots sprouting, cut always as close into the

crown as suggested for the carrots, and keep them as cool as possible. We have known carrots keep nearly two years thus treated; some roots, however, are more impatient of cutting to the quick.

THE BEE-KEEPER'S CALENDAR.—OCTOBER.

By J. H. Payne, Esq., Author of "The Bee-Keeper's Guide," &c.

AUTUMNAL UNIONS.—It is now high time that these operations should all have been performed, or that arrangements are made for their speedy accomplishment. The advantages are very great if the union be effected in a neat manner. A gentleman writing to me on September 9th, says:—

"It must be remembered that strong stocks are not to be deprived of their honey and united to others, but *weak* ones only, and with them the operation is effected with the least trouble imaginable. Strong stocks should be left till next season, and then timely supplied with room *above*, and their honey taken in that manner. A friend of mine travelling last week upon the coast of East Suffolk (where fire and brimstone, I am sorry to say, is much too frequently in use with bee-keepers), observed in a very neat little cottage garden two unusually strong stocks of bees, which induced him to halt for a few minutes and ask a few questions. The occupier of the place he found to be a jobbing gardener, who in the spring last year, 1848, obtained a swarm of bees which were put into a set of boxes of rather large dimensions. In the autumn of the same year one of his employers happened to be *burning* his bees, as it is there termed; this good man begged the burned, or rather stupified bees of his employer, carried them home with him in a flower-pot, and united them to his own. This double population agreed remarkably well, and in the early spring burst out to work with vigour, quite unparalleled thereabouts; sent out a very early swarm of unusual strength, and both swarm and burnt stock have collected a most extraordinary quantity of honey."

TAYLOR'S AMATEUR'S HIVE.—Since writing my last paper I have had an opportunity of examining one of my hives of this kind in the presence of the inventor, and very much indeed to his gratification. My first step was to push in the zinc slides, thereby cutting off the communication between the upper and lower box; then raising the upper box about a quarter of an inch upon three blocks, upon which the bees immediately left it and went into the lower box by the usual entrance. This had all the appearance of a swarm returning to its parent hive. When about three-fourths of the bees had left the upper hive, I brought it into the middle of my garden, and proceeded to unscrew the glass top, upon removing which most of the remaining bees made their escape. I then with the knife loosened the first comb from the sides of the box, and lifted it out, observing that there had been no brood in it. This comb I placed upon a dish beside me; after taking out the second I put it where I had taken the first from, and so on until I had taken them all out and examined them. To our satisfaction not a bee had been hatched in any of the cells; they were all worked evenly upon the bars, and not joined anywhere one to another. After placing the combs in their proper places the box was then returned, the sliders withdrawn, and in a very few minutes things were as if there had been no disturbance. This operation (which was done very leisurely) occupied about half an hour, from 11 o'clock till half-past. During the whole time not

one drop of honey escaped from the cells, nor was a robber bee seen near us; but the most extraordinary thing was that I was enabled to do this without any protection whatever, satisfactorily proving that the bees were not at all annoyed by it; what few bees were left upon the ground I collected in my hand, and held them to the mouth of the hive, which they very quickly entered; a further proof this that not the least irritability was caused by this examination. All this tends fully to establish what I have before said respecting this hive—"That both the bees and their store are at all times completely under the command of their proprietors. From this hive fine honey-comb may always be obtained; swarming effectually prevented, and artificial swarms when required insured."

STOCKS.—Small hives remaining upon the stocks, though only partially filled with honey, may now be taken off, provided the stock will not be too much impoverished thereby. Wherever the chance of this presents itself, leave the small hives on through the winter, or until they are emptied by the bees. Those partially-filled hives taken from rich stocks may be given with advantage to poor ones, now or in the spring. It is always desirable at this season to take off *all* the small hives, &c., that the stocks may be the more easily protected from wet; always remembering that 20 lbs of honey should be left in each stock, except in swarms of the present year, for which 17 or 18 pounds will be sufficient.

COVERINGS TO HIVES.—Examine carefully the coverings to the hives that they be all sound, and that no rain be admitted through them, for it will in a short time destroy the most vigorous stock.

ROBBERS will at this time be carrying on their depredations; and should a serious attack be observed, the entrance must be narrowed one half at the least. Wedges of cork answer very well for this purpose.

WASPS AND HORNETS.—Use the greatest vigilance in destroying the nests of wasps and hornets; they are both great enemies to bees; the one by seizing them alive, and preying upon their bodies, and the other by pillaging their stores.

PEDESTALS.—Let the pedestals which support the hive be well looked to at this time; although to the eye they may appear sound, let them be examined two or three inches below the surface of the ground, and should they be found in an unsound state replace them by new ones; and if they are a little charred before fixing, it may be the means of preserving them a little longer.

I had hoped, and indeed promised, to say something on the use of chloroform for fumigating bees, but I must first gain a little more information and experience in the matter, the result of which I hope to be able to give in my next calendar.

AUTUMN-BLOOMING PELARGONIUMS.

The following is a list of good pelargoniums that will bloom in the autumn, if stopped in succession from the beginning to the last week in May. As the autumn advances, the latest of them may require some assistance with dry heat, but anything approaching to close or damp heat would only cause them to grow on. A late peach-house, or a vinery, from which the fruit has been cut, would be the most eligible place for them, and air night and day must be allowed them. Cuttings of the *Alba multiflora* put in at the beginning of April, to be in their blooming pots by the end of June, and kept rather dry from the middle of August, will succeed these, and carry on the bloom to

Christmas. All pelargoniums that flower after the middle of September under this treatment, are left in the same pots till the beginning of January, and only cut down half the length of the shoots in October to get head-room for them; they are not allowed to get quite dry in winter, but no more water is given them than will keep them from shrivelling; and, as they have but few old leaves, any spare room, or under a dry stage in a greenhouse, will do for wintering them. In January they are cut down close to three or four eyes, and afterwards treated in the usual way.

Agrippina	Mulberry
Ethel	Negress
Free Briton	Orion
Forget-me-not	Othello
Hebe's Lip	Phyllis
Klug (Gaines)	Priory Queen
Luna	Queen of Trumps
Lady Denby	Sarah
Madeline	Silene
superb	Witch
Milo	

The great growers supply them at from 12s to 18s per dozen, according to the size of the plants; but a selection of the newest of them would be charged higher. As we intend to scan this subject thoroughly, we invite contributions or any remarks on the subject.—SENILIS.

PIG-KEEPING.

THE allotment system is now so general, that I hope all my readers have some land on that plan, and, moreover, that they cultivate it in the manner recommended by THE COTTAGE GARDENER. Many of my poor neighbours have these gardens, but they have not what I consider an essential companion to them—a companion who will almost pay the rent of the cottage; in fact, a kind of "household treasure"—a Pig! In answer to my inquiries, "How is it I see no pig?" I hear from one, "I have no time to attend to one, I work hard all day for my master, and after hours for myself in the garden." From another, "I have no money to buy one." Now, I will show No. 1 that his excuse is not a sufficient one for me. With No. 2 I expect a little more difficulty, but "nothing venture, nothing have," so I will do my best to coin a little money for him—aye, to coin. Is not a penny saved a penny gained?

Well, to begin with No. 1. I see you have no spare time; I hear you do not even pass five minutes at the "Ring of Bells;" but who is that smiling, stout girl who opened the wicket for me? Why could she not tend to your pig? She is hard on ten years old, I am sure. You say, too, your wife is sickly, therefore she will be at home, and so you will have the old head and young shoulders to help you out of your difficulty. And now a few words to my young friend. At present you are but of little assistance to your parents, but, by taking pains and being attentive to what your mother tells you, you may greatly assist her in paying the rent. Add your voice to mine, and beg your father to buy a pig. There, see how pleased she looks. I am sure her father has said "yes." Now for No. 2. You tell me you have no money; I must confess that is rather an awkward answer, but how is it that I see you (when taking my evening walk) sitting at the door of the "Ring of Bells." I fancy the landlady would not smile on you unless you had some money. What do you say? How many pennies do you give her a week? That pipe, too, how much does that cost you? My friend, listen to me; forsake the doorway for ever, give up your pipe for a time, put by the halfpence till you

have six or seven shillings, and then buy a pig. Whilst saving up your money, ask your wife to save all the cabbage water, skins of potatoes, shells of peas, &c., in a tub, by which you will have a nice store to begin on. And when your pig is bought (if you can manage it), take home your pint of beer and divide it with your wife, and do not forget to thank the "Giver of all good things" that he has enabled you to forsake some of your evil ways; for, depend upon it, there is no surer way to misery, here and hereafter, than frequenting the beer-shops. Another time, perhaps, I will give a few hints as to the feeding, killing, &c., of your pig.

A FRIEND OF THE POOR.

[Pray communicate all that you practically know about the best mode of pig-feeding.—Ed. C. G.]

DRILLING AND SURFACE-STIRRING.

PERCEIVING how strenuously yourself and other writers have advocated the sowing of all seeds in drills, as well for facilitating the management of crops as for their neat appearance, and being a lover of method and order, I determined to adopt your advice, but really found it a very troublesome and uncertain affair when attempted to any extent, as it is next to impossible to draw the drills with any degree of accuracy one at a time on a piece of fresh dry ground; but on a perusal of the late Mr. Cobbet's works on gardening, I there found directions for the construction of a very efficient and useful implement, which he terms "a drill rake." I have had two made, and find them so well adapted to the purpose, and such economisers of our precious time, that I hope never to commit seed again to the bosom of the ground without their assistance.

These drill rakes are made of wood, having four or five teeth four inches long, one inch wide at their connexion with the head, but tapering to half an inch at the point. I use two sizes, one with teeth six inches apart for seeds for transplantation, &c., and another with teeth eight inches apart for carrots, parsnips, onions, and the like.

The mode of using them is as follows: having prepared the bed, I stretch a line along one side, and insert the teeth of the rake at one end, the left hand tooth of the rake touching the line; I then walk backwards, drawing it after me to the end; five drills are thus made. I then begin at the other end of the bed as at first, but without the line, merely inserting the right hand tooth of the rake in the last drill previously made: walk backwards as at first, making four more drills. I continue thus till the bed is finished, which occupies so little time that a bed 40 feet by 20 feet is done in about 10 minutes, thus enabling you to economise seed, and leave it with the assurance that it is beyond the reach of those plagues of every gardener—the sparrow and finch.

Well, seeing the fruits of my labour in the crops above ground in beautiful array, and knowing the necessity for keeping the earth well stirred between the rising crops, especially in such a parching season as the past, I pondered upon the means of doing so, feeling assured that once pulverizing the soil was better than ten waterings. I then devised the bent fork, of which I send you a sketch (so that I need



not describe it farther than say the two prongs are three inches apart, and four inches long from the

bend). So soon as the plants are fairly above ground, I insert this between the drills, and walk backwards as with the rake, pressing it well into the soil, so as to stir it deeply; a large piece of ground is thus gone over in a short time, and if done often prevents the necessity of weeding and watering; of course the crops are properly thinned in the drills, by hand or hoe.

I have operated in this manner on all my sowings of this season, and the result has exceeded my most sanguine expectations. Be it borne in mind, I have not used a drop of water to my crops this season, nor any stimulating manure, and they are far beyond anything I have hitherto grown.—W. SAVAGE, *Friary Cottage.*

MY FLOWERS.

(No. 45.)

WHAT a beautiful autumnal flower the salvia is! How brightly it glows in the border, and how soft and silky are its deeply dyed blossoms! Beds of salvia are easily obtained, and their effect is so good that we should endeavour to increase our stock, and to procure as many varieties as we can grow in the open border. The shrubby kinds are increased by cuttings, the annual and biennial sorts by seed, and the autumn is a good time for sowing it. The salvia is a species of sage, which is so well known as a garden herb. The latter grows wild in the south of Europe, in the islands of the Mediterranean and Archipelago, and also in the southern coast of the Crimea. It was formerly much valued for its medicinal properties, so much so that it gave rise to a Latin proverb, "How can a man die who has sage in his garden?" The Chinese value it highly, and use it freely. I have read that the Dutch, at one period, carried cargoes of sage leaves to China, for which they received four times their weight of tea, thus evidencing the high esteem in which the Chinese held it. Red sage tea is a remarkably fine gargle when mixed with an equal quantity of vinegar, and sweetened with honey. Into this mixture put two or three leaves of the honeysuckle, which have a very softening and healing effect; and I have known this simple preparation relieve sore throat when more scientific decoctions failed. The thickest and most pulpy leaves should be chosen, and left to float in the mixture. In the islands of the Archipelago the sage is so large and fine in its growth as to be considered a shrub. Even the flowers of the wild plant are varied and bright, and no doubt its valuable properties are known and esteemed still among the natives of those regions. The cultivated species of the sage, which we call salvia, comes from warmer and more distant lands. The bright scarlet, so dazzling, and so like the softest velvet, comes from Peru, and its colour forcibly and affectingly reminds us of the scenes of bloodshed which took place in its native soil. The *Salvia splendens* is a plant from another blood-stained land—unhappy Mexico; and the gold-flowered salvia was brought to us from the Cape of Good Hope. This beautiful variety has very delicate, silvery leaves, and blooms from spring to autumn, thus forming a valuable addition to our garden flowers. A garden might be extremely gay with these brilliant plants, and they bloom quite into the frosty season. Cuttings should be taken in the spring, but I think it likely that even now they would do well, with plenty of shade and moisture. To those of "my sisters" who, like myself, are obliged to have recourse to *inventions*, it may be useful to observe, that in a hot, sunny

window, where cuttings would sicken, I have tied a piece of paper round the brim of the flower-pot, so as to stand up like a screen, and shelter the cuttings from the rays of the sun, while the pot itself receives their genial warmth, and conveys it to the soil. The paper, too, gets warm, and appears to cherish, as well as screen, the young plants. We cannot always command the sort of aspect we require for everything, but, by contrivances, much may be done; and a sunny window is such a treasure, that we may make it almost perform the part of a conservatory. Seedlings, however, are best for planting in beds, because they grow more bushy, and not so high. Seed should be sown in pots, and protected during the winter. If we cannot take possession of a window in which a flower-pot or two can stand during the cold weather, it would be better not to attempt to raise delicate seedlings, or, at least, we must be prepared for very probable disappointment, although the little anxiety of looking after them may amuse us when our gardens are frost-bound, or buried in wreaths of snow. I confess that I often envy those of my friends whose flower-beds and sheltering places are close to the house, enabling them, in almost all weather, to busy themselves among their favourites, and water or shade their potted plants with ease. My garden is so far off, there is so much lawn to traverse, no gravel walks, and no shelter but that of shrubs, that I am often unable to do more than peep at it from the window, and catch glimpses of its condition through the boughs of an intervening cedar. A lady of my acquaintance has for some years settled herself in a cottage close to a village, yet sufficiently retired to be neither overlooked nor incommoded. It was originally two tenements, but she has thrown them into one, and has carried a rough verandah of fir poles along the front, which has become one mass of roses, ivy, and Virginia creeper, the effect of which is lovely; and it forms a complete cloister of perpetual verdure, where air and exercise may be taken even in wet weather. Her garden is full of flowers, the wall is covered by a bower of honeysuckle, and although there are none of the more choice and tender plants, yet the general effect is excellent; and, enter the garden when I will, I am sure to see some flower or another there. All her little possessions are conveniently at hand, and it must be so pleasant to be able, during the heaviest storm, to rush out and snatch up a buffeted geranium, or throw a mat over a hen-coop, that I cannot help longing to live in such a cottage with everything close to my elbow, where I could watch over seedlings and cuttings without getting wet through, and observe all the interesting effects of the shower and the sunshine with dry feet and undragged dress. There is something wonderfully agreeable in the idea of a cottage, something peculiarly snug, peaceful, and *English*, something that either interests our feelings, or pleases our fancy, and has done so ever since we first ranged through lanes and fields in our infancy. Yet I am well aware that *place* has nothing to do with happiness, though we too often go about "seeking peace and finding none." A rose-covered trellis cannot satisfy a craving mind, a sheltered cottage cannot give peace to a troubled spirit, nor can hothouses and conservatories content a restless one. We all build "castles" of some shape or size, and sometimes God permits us to inhabit them, that they may say to us, "Happiness is not in me." No; striving to fulfil our duty to God and our neighbour in that place which *He* has appointed is more certain happiness and peace

than any situation *we* may covet. There are times, indeed, when we may be called to "depart" like Abraham, but moving in obedience to the evident command of God is quite different to following our own blind will, or fleeing "from the face of the Lord" like Jonah. Let us all be contented with the "bounds of our habitation," for God has marked them out. The cottager may wish for a finer garden, the lady for one smaller and more snug, but we know not what is best for us. Only let our hearts be fixed on "those things which are above, where Christ sitteth at the right hand of God," only let us lay firm hold of that "hope which we have as an anchor of the soul, both sure and steadfast," and then, whether our lot is cast in a palace or a cabin, in poverty or plenty, in weal or woe, we shall be able to say with the troubled Shunemite, "It is well." Let her bright example of contentment read a lesson to our often wayward hearts; and when we are tempted to seek out fresh paths for our feet, let us think of her quiet, beautiful reply, and be still—"I dwell among mine own people."

CELERY AND STRAWBERRY CULTURE.

HAVING for a number of years raised celery, not very successfully, in pits, I last spring consulted your pages with the view of changing my mode, in order to succeed better. But I must confess I was puzzled when I had done so, for there I found Mr. Barnes, a high authority, planting across shallow trenches five feet wide, six plants in a row, and 18 inches between the rows, in ground which had previously been well trenched, and manured with a moderate quantity of well rotted manure, forked in and incorporated with the soil before planting; Mr. Turner, a very high authority, inserting his plants 12 or 15 inches apart, in pits seven inches deep (not more) and two feet wide, filled with stable manure, and covered with soil an inch or an inch and a half thick; while Mr. Nutt, a very high authority indeed, places his in a trench 18 inches deep and 36 inches wide, filled with 15 inches of pig and horse dung, with horn or bone dust, well mixed, and covered with three inches of soil.

In this dilemma I resolved upon referring the question, as to which of these modes was calculated to produce the best and heaviest celery, to the arbitration of—*experience*, by adopting all the three. This I did by preparing the pits and planting out agreeably to the directions of each of my masters respectively, in the same spot of suitable ground; and when the arbiter shall, some time before winter sets in, have given his final award in the case, I shall let you know the result for the government of my fellow-subscribers.

In the meantime I have seen enough to satisfy me that any of the new modes will be better than my old practice, and that, of the two which will bear comparison, Mr. Nutt's and Mr. Turner's (which I carried out at the same time, while I reserved Mr. Barnes' for my later crop), the latter promises rather the better—probably in consequence of the roots in the shallower pits being kept nearer the warmer surface, while those in Mr. Nutt's deeper pits seek farther down into colder ground. Whether the greater body of manure in the latter may encourage a longer and more vigorous growth in the plant in future, time will shew. In the meantime I am very well pleased with my trial, some of my plants already showing a vigorous growth and a massy stem of fully three feet in height.

As "doctors differ," at least as far in their modes

of growing strawberries as celery, and as, although no doctor, I have been rather successful in the culture of that productive and delicious fruit, I may, while I have pen in hand, add my mite to the contributory information which your useful pages already afford on the subject, by giving some of the details of my practice and its results.

My climate, then, is what may be expected in a dry situation, far from, and some 600 feet above, the level of the sea; my soil a strong clayey loam, recently trenched and drained, from an old wood, which was full of boulders, and very wet. The kinds which I principally cultivate are nearly what you recommend.

1, *The Keen's Seedling*; an excellent berry and fair bearer. 2, *The British Queen*; a delicately-flavoured good-sized berry, but I have not yet found it a great bearer. 3, *Myatt's Deptford Pine*; a large and high-flavoured berry, and a very good bearer. And 4, *The Elton Pine*; large, but coarse-flavoured, and a very great bearer. Other kinds I have a few of, for the sake of variety, such as the old *Roseberry* and the *Bath*; and I was, like many others, duped into trying the *Aberdeen Beckie*, which seems to me of a similar kind, only not so large nor so fine, as the old *Scarlet*, and which runs a fair chance of being turned out of my garden with disgrace next season, if it does not prove better than it has done this. And I do not mean to try the "*Aberdeen Monster Batwing-shaped Strawberry*," although "39 ripe berries were taken from one plant weighing 25 ounces."

I dig deeply and manure well before planting. I have been in the practice of planting runner plants at once in the bed in which they are to stand, filling up with turnips, spinach, &c., the first year after planting, but have recently adopted the plan you recommend of planting them in nursery beds for a season, which I think is better.

I allow between each plant of the Keen's Seedling 21 inches, between each row 2 feet; of the British Queen, between each plant 2 feet 3 inches, and between each row 2 feet 6 inches; of Myatt's Pine, between each plant 2½ feet, and between each row 2 feet 9 inches; and the Elton Pine, between each plant 3 feet, and between each row 3 feet 3 inches. I fork over the ground in the fall of the year, and dig it over and manure it well in the spring, not merely between each row, but between each plant, which I keep as distinct from its neighbour as I would two gooseberry-bushes. I dig all down, and make a fresh plantation every fourth year, counting from the time the plants are taken from their parents.

Now, with reference to the space which I allow for my plants to grow in, I think I hear some of your old-fashioned readers, who (as I have heard done) grudge a foot between the plants and 15 inches between the rows, exclaim, "What a waste of ground is here!" But I say, no! for mark the results. My plants nearly meet after the first year, allowing between each merely access to as much sun and air as is necessary for bringing the fruit to maturity; and without this you cannot have good fruit, as is exemplified in some rows of the Elton Pine which were planted in my garden by mistake only two feet apart, the fruit of which, although a heavy crop, becomes soft and pulpy before it ripens. Then, I have finer fruit and more of it than under a mode of culture less liberal in point of space. For example: from a plot of 250 plants of the Elton Pine treated in this way, I have in this, the third season, picked in one day nearly 35 lbs. of splendid berries, very many of them of the Batwing or double kind, and weighing from an ounce to an ounce and a quarter each berry. I have selected a

few of the largest, and found them to weigh at the rate of 12 to the pound; and I have counted the number of berries, ripe and unripe, on some of the plants, and found it to be from a hundred to a hundred and twenty, after two or three pickings from the plot, including the above great picking.—C.

[We beg our readers' particular attention to this very able and trustworthy communication, for although we are only at liberty to publish the writer's initial, yet we have his address, and hope to receive from him some more reports of his enlightened practice. In the true spirit of gardening he has brought the three slightly-differing modes of celery planting, recommended by our contributors, before the best of all judgment-seats—that of practice; and we, as well as our contributors, are sure will be well pleased to know the result. We fear, however, that Mr. Barnes will have a just ground for appeal, because his mode has not been tested at the same early time with the others. The result of our correspondent's strawberry culture is most satisfactory, and so closely approaches that of some of the best strawberry growers, though he slightly differs in his distances, that we recommend it for trial by our readers.—Ed. C. G.]

EXTRACTS FROM CORRESPONDENCE.

FUCHSIA RICCAERTONI.—There is now growing in my garden a *Fuchsia Riccartoni* nine feet six inches high, and thirty-three feet in circumference, measuring round the extreme branches. It would be much larger were it not hemmed in by other fuchsias of the same kind. Seven years ago I brought this tree home in my waistcoat pocket, and planted it as a cutting; it was turned out the following year in the situation where it is now growing, and has never died back, but merely sheds its leaves each winter, and buds out in the spring to the extreme points of the branches. It is now (Sept. 4th) one mass of splendid blossoms. Is this *sized* fuchsia grown elsewhere in such perfection? My garden is very much sheltered, and within the influence of the sea atmosphere. This is the only fuchsia I have yet grown that is not more or less injured by the winter cold. The *scarlet geranium* and some of the *verbenas* have lived through the winter here in the open border, and I have known the *heliotrope* and *geraniums* (especially one we call *Touchstone*) in blossom on the 1st day of the year.—Rev. C. OSSLOW, *Knoll Rectory, Corfe Castle, Dorset*.

[We know this fuchsia well. It was named after a gentleman's residence, Riccarton, near Edinburgh. There is a drawing of a specimen of the same variety, and of similar size, in the *Gardener's Chronicle* for 1846, page 579. That specimen was growing by the side of a carpenter's shop near London. The branches were killed by the severe winter of 1841, but it revived and attained the great stature there recorded. The carpenter's shop, we believe, was in the Horticultural Society's Garden at Chiswick. This large growth is not peculiar to F. Riccarton, nor to the mild climate of the south of England, for, in the *Gardener's Chronicle* for 1843, pp. 557, 790, a *Fuchsia macrostemon* is described as growing at Logan, Wigtownshire, ten feet high, and forty in circumference. Another fuchsia, we are told, is mentioned in *The Scotchman* as being thirteen feet high, and nearly forty feet in circumference. We recommend the growth of *Fuchsia corallina* to our readers as the best of the new varieties for attaining a large, bushy

growth, and as nearest to the old varieties in appearance.—Ed. C. G.]

Tobacco-WATER FOR THE APHIS.—A writer in THE COTTAGE GARDENER recommends a quantity of tobacco tea, as he calls it, to be kept in corked bottles ready for use, and, on the first appearance of the aphids, or green fly, to damp the parts affected by means of a piece of sponge dipped in the liquor, but a soft brush or a feather will answer as well, and may be more handy in some cases. We would strongly urge on all our plant growers to keep some of this liquor by them for instant use, because, if the bottle or jar is well corked, this useful and cheap application will keep good enough for a whole season. It is as easily made as a cup of tea, and much in the same way, by pouring boiling water at the rate of a quart to an ounce of best tobacco, and covering over the vessel till the liquor is cold. A tea-spoonful of soot may also be added before the water is put on. The ammoniacal smell from this is very disagreeable to insects, ants, and slugs. Draw off the liquor quite clean, in order that no disfigurement may ensue to the leaves by its application.—SENILIS.

WINTER PLANTING POTATOES.—According to your advice I planted potatoes in winter. I just contrast the results:—1846, planted in April, three-fourths diseased; 1847, ditto, one-half ditto; 1848, ditto, all diseased; 1849, end of December, not one diseased, and the crop about one-fourth more than any of the previous. Part of the ground was the very same as the bad potatoes grow on, because I occupy more ground for potatoes than all other vegetables.—H. B., *Sheffield*.

POULTRY.—I am happy in being able to give an answer to the query (*J. H. S.*, p. 259), respecting the two descriptions of hens he names. I have seen something of the *Chittaprats*, but decidedly prefer the *Golden pheasants*, having tried them for two years. They are not sitters, which the former are, but the eggs of the latter are very superior. Mine commenced laying early in January, but, counting from February down to the end of July, they laid 1000 eggs. I should have said my stock was 26 hens, and two cocks; and for the last two months 16 was the number. This includes eggs sat upon by four hens of another breed, producing 36 chickens. Thirteen eggs were put to each hen. The greater part of the year they have been fed upon rice boiled, with an occasional help of barley. The rice cost me 13s per cwt., carriage included, at the rate of 10s 6d rice, 2s 6d carriage. I have not made up my accounts, to see what they have actually cost me, but think I may be somewhat on the wrong side, although I have killed 33 chickens in the six months, which chickens had been kept upon the same materials. They are confined to a good sized yard, with no grass to feed on, but occasionally cabbage leaves from the garden. Under these circumstances of confinement they require more feeding than if they had the run of a field, where they find much to exist on; but the former being dry, it favours the rearing of chicks, of which I have lost comparatively few, that is four or five last year and two this. Ducks also form a portion of my stock, in the rearing of which I have not been so fortunate, having allowed them to sit, instead of placing hens on their eggs. Those hens I have allowed to sit are a kind of Top-knot Malay, I think, which I have crossed with the pheasant, and hope to find some of them will sit. They make good layers.—ROBERT HAYNES, *Daneshford*.

THE INTERMEDIATE STOCK.—The way I grow it is to sow the seed the first week in August. By the first week in September the plants are ready to prick out in pots. I put three in a six-inch, or 32-pot; growing them in very poor soil, and keeping them all the winter in a cold frame. They show flower very early, and I plant them out the last week in April with their flowers just colouring. I am so very fond of them that I grow as many as I can of them; some are still blooming (September 4th). I am sure they do better without manure; they come nearly all double.—J. C., *Halloway*.

[You have hit upon the best mode of growing the intermediate stock. We are always glad to receive particulars concerning any of our readers' modes of cultivation. Such particulars may appear simple to themselves, but they are original and valuable to many.—Ed. C. G.]

RYLOTT'S FLOUR-BALL POTATO.—A correspondent asked a few weeks since, "Has Ryloft's Flour-ball potatoes pink eyes?" As no one has replied, I write to say that they have not. I wish to say a few words in favour of this potato. In the first place it is a most prolific bearer. I am not aware of one kind which bears better than the "Flour-ball." A friend of mine, from whom I obtained my seed, informed me (and I have no reason to distrust his veracity) that a neighbour of his planted half a peck (10 lbs.), and had the enormous produce of 13 pecks, or 260 lbs.; but this was in a good locality for potato culture; however, with me they bear extremely well. Secondly, the flavour is first-rate. I do not remember having tasted any of a better flavour. It is true they do not grow large, but of a nice moderate size, and their appearance is good when boiled. They are then very white, and really worthy of the name they bear—"Flour-ball." I consider that they are a second early. I wish every cottage gardener had one peck to plant next season: my impression is they would not regret having made the experiment in planting such an excellent variety.—J. TURNER, *Nurseryman, Neppend, Sheffield*.

FUMIGATION OF BEES.—Some of your correspondents appear to be at a loss for the proper material for the fuming of bees. No work on the subject, that I am aware of, gives more ample information than Taylor's "Bee-keeper's Manual," wherein is described a new kind of most effective fungus, which may be procured in any quantity. Very probably it can be had of Neighbour, High Holborn, London. I have tried various modes of uniting families of bees in autumn, including that of Gelieu, as given by Mr. Payne, but prefer, as the most simple, the method detailed in the above-named publication. (My copy is the third edition.) As to chloroform, no one can doubt its effect on any form of animal existence; but it is wise to introduce among servants or cottagers an agent at once highly dangerous in improper hands, expensive, and of troublesome application, when a bit of fungus or mild tobacco, scarcely to be valued at a penny, will answer every object?—AN OLD BEE-MASTER.

[We think you are right. Where the fungus can be had, and tobacco can be had anywhere, there is every reason against using so dangerous a compound as chloroform.—Ed. C. G.]

HYACINTHS, NARCISSUS, &c.—Bulbs of these, and all other hardy bulbs, that are intended to bloom about or before Christmas, will force better and easier the earlier they are potted this month, because the pots will get full of roots before they are brought into heat; but for spring flowering they will be soon

enough if potted any time in October, or even by the middle of November. After they are potted they may be placed in a sheltered place out of doors, and coal-ashes, earth, sawdust, or leaf-mould heaped over them, so that five or six inches of the covering may stand above the pots. The reason for covering them thus deeply is that the heat of the season may not excite the bulbs till their roots are first made, and if one gentle watering is given at the time of potting it will be enough to excite the roots into growth. Those intended for water-glasses need not be potted, but only buried in light soil, or placed in a box of sandy soil, yet, in either case, to be buried from the influence of the sun, like the potted ones. Those intended to be grown in fresh moss may be potted at once in pots full of moss, and placed behind a north wall or any dark corner, and empty pots turned over them; or if placed in a row, and a board laid over the pots, to keep mice or other vermin from them, it will be enough; or the whole lot may be put down in a cool cellar, the great desideratum being to get them well rooted before the leaves are put in action, and to preserve the bulbs from rats and mice and all such enemies. Some people put rich old manure at the bottom of the pots, and if that does not turn sour or hinder the drainage it will be of considerable use in strengthening the foliage, but hardly of much importance for the size or vigour of the flowers, as all, or almost all, the substance which produces the flowers is already stored up in each bulb.—D. BEATON.

TWO CROPS OF POTATOES A YEAR.—I am growing a second crop of potatoes this year, and they are looking very well (August 28th). They are now in flower, and do not seem to be touched with the blight. My first crop was of Ash-leaved kidneys, and this is of Prolific and Jersey blues. This crop is growing in lazy beds. What do you think of that plan? I think well of it: there is no idle ground.

[Lazy beds are advantageous in wet soils and climates. Oblige us by informing us when you planted your first crop, and what amount of produce you have from your second crop. Did you plant sets taken from the crops of 1845?—Ed. C. G.]

BLACKBERRY JAM.—Allow me to suggest to those of your readers who feel an interest in the welfare of their poorer neighbours, that preserved blackberries are nearly equal to black currant jelly in relieving affections of the throat, &c., arising from colds and coughs. They should be made into jam or jelly in the same manner as currants, save that instead of putting equal quantities of fruit and sugar, half the quantity of the latter will be sufficient. Thus, to one pound of blackberries I put half a pound of sugar. Might it not be the means, also, of putting a few pence into the pockets of some industrious lads for collecting fruit? I may mention that many who were in the habit of visiting amongst the poor and sick during that period when the influenza was so prevalent, found blackberry jam extremely useful.—F. W. R.

PACKING TREES FOR EXPORTATION.—A son of mine, who has been for some years settled on a branch of the Hunter River in New South Wales, has written to me to request that I will send him out this autumn a collection of the best apples and pears and other fruit-trees, for a large orchard which he has prepared to receive them. Now, I should be glad to be informed, as exactly as possible, the precise time when the plants should be taken up, and the best mode of packing them. He assures me that a neighbour has received fruit-trees from England, and that they all lived; but as the winter here is summer in Austra-

lia, I am confident it must require the nicest management to ensure their surviving the voyage.—A. R. A.

[Young fruit-trees destined for Australia, or other long voyages, should be pruned immediately, and that closely, leaving no more than two or three buds at the bottom of the young shoots. This will cause an accumulation of sap in the buds left, which helps materially to their success. Healthy, upright trees, and about three years old, should be selected; the names to be on zinc labels, fastened to the trees with copper wire. Prune the roots also close. The trees need not be taken up till the vessel is nearly ready to sail. October and November are the best months; and by far the best way to pack them is in strong wooden cases, using seasoned or dry saw-dust to pack with, and that as closely as you can ram it without bruising the trees. You should contract with a respectable nurseryman at once, show him this notice, and if he engages to transmit them on a safer plan, let him have his own way. Pruning them at the end of September is the most essential part of the undertaking. We shall be very glad to hear from any one who has sent trees successfully to Australia, how they packed them. We want facts. See what Mr. Beaton says to-day on this subject.—Ed. C. G.]

DESTROYING SLUGS.—Few questions seem to be put to you more frequently than, how to resist the ravages of slugs? It is incredible the numbers I have destroyed by placing slices of *Suedish turnip* about the parts infested. They crowd to it, and in wet weather may be picked from the slices several times a day.—E. I.

CATERPILLARS AND SLUGS.—About seven years ago I came into possession of the gardens which I now occupy, and the first thing which struck my attention was the leafless and stunted appearance of the gooseberry-bushes. In a short time, as the summer advanced, I found that caterpillars were the cause of all this mischief; on further search I began to suspect that they were produced by a moth, a handsome one with black and red wings. I observed that it was not to be seen except in the neighbourhood of gooseberry and currant-bushes. I immediately gave my little boys encouragement to kill them by purchasing at a cheap rate the dead bodies of my adversaries. I began this system about three years ago; gradually the caterpillar has disappeared, and, though a few moths have been seen and destroyed this year, such a scarcity of caterpillars has been the result that I have my bushes looking well and full of leaf, and, in spite of a reward offered for their apprehension, remarkably few have been brought to justice. I write this for the encouragement of those who may be similarly afflicted. *Slugs* have also been the objects of my attention, and I have found that the best method for destroying them is to place slices of the Swede turnip near the young crops which they are most likely to attack. On dewy mornings they will be found beneath the turnip in great numbers, both great and small. Now, the great can easily be cut into two parts with a scissors, and their size is always a sufficiently strong inducement to destroy them, but the difficulty was to kill the more minute ones sticking in great numbers to the turnip; to effect this I take with me a brickbat, against which I strike the slice of turnip, whereby a host of young depredators are crushed in a moment. These suggestions are not very novel, but the practice has been so successful that I hope you will excuse the liberty I take in addressing you on so humble a department of gardening.—J. W., Helston.

POTATOES.—A Cornish correspondent says, "You will be gratified to hear that the potatoes in this neighbourhood are looking exceedingly well, and shew no symptoms of disease. I am living in the midst of market gardens, my house being within a quarter of a mile of the village of Wileove, famous for its brocoli. Sea weed is used for manure in great abundance."

TO CORRESPONDENTS.

REMOVING GOOSEBERRY-BUSHES (*A Cottage Subscriber*).—You may remove these now if you injure their roots as little as possible. We should give them their winter pruning before doing so. This early removal is only allowable because it is a case of necessity; otherwise, the end of October and November are the best times for planting and transplanting trees. For full directions for *asparagus forcing* see pp. 92 and 171 of our first volume.

INDEX TO FIRST VOLUME (*Frank*).—You can obtain this at our office through your bookseller for a penny.

WINTERING VERBENAS AND GERANIUMS (*H. R.*).—Do not hang these up by the roots unless you wish to destroy them. See what we say at p. 428 of the *Nursery* of our first volume.

BUFFALO CZELEY SNOW (*T. Dixon*).—Send us the weights of the celery.

INARCHING (*A Beginner*).—By inarching, or grafting-by-approach, is meant grafting the branches of two trees or bushes together whilst they are growing, for each other, and not cutting off the scion or graft from its parent until it has united or grown to the stock.

POTATO STORING (*Clericus, Beds*).—Some of your potatoes have "gone bad" since they were taken up, and, fearing that the same may happen to your main crop not yet taken up, you ask our advice, and it is this:—For them up immediately, whilst dry weather continues, and store them in a dry cool shed, in layers alternating with dry earth or charred refuse, covering the sides and top three inches deep with the same. Do not let any two potatoes touch. It is not unusual for one variety to be less diseased than another, as in your case the *Farmers' Gloires* were attacked, but not the "Clunberts." We do not know the latter.

SOAK KROUT (*W. C. G.*).—If the quantity will not go into a twelve-gallon cask, but which we are told it will if properly sliced and pressed, use a larger cask.

PUMPKIN SEEDS (*Idem*).—A pumpkin should be cut as soon as the leaves begin to change to a yellowish colour. The flesh of the pumpkin, if a good variety, will be excellent made into soup, as directed at p. 43 of our first volume; or it may be boiled and mashed like turnips. Wash the seeds in a sieve, dry them, and keep them in a dry place, tied up in paper. Cut off the heads of the *Brussels sprouts* and *Barnes' Sprouting savoy* when the stems are about eighteen inches high. This promotes their sprouting.

GRAPES RIPENING UNEQUALLY (*J. B. Richmond*).—In reference to your vines that have ripened and swelled one part of each bunch, while the other part has withered, you should, in the first place, remove the strawberries from the border immediately and totally. You could not have anything worse, for they not only root deep and exhaust the soil, but their foliage shades the border, and prevents the soil being so warmed as it ought to be for a native of sunny climes. Try and keep your border for the vines unobscured, and encourage them to root near the surface. See what has lately been said in our pages upon that subject. Secondly, examine if the border is drained; if not, lose no time in getting a drain made, at least in front, from three to four feet deep. Thirdly, if you shut your house up at night, be careful to give a little air the first thing in the morning, and before the sun strikes upon the house. In late forcing it is always safest to leave a little air on all night. Fourthly, in the succeeding year be satisfied with a moderate crop of good quality, rather than a large crop that will be inferior, as much of the evil of which you complain is owing to the want of a proper root action, or the roots being so deeply placed so deep that the rank juices they absorb cannot be sufficiently elaborated and matured; and fifthly, the appearance you describe is sometimes met with, but not often, from neglecting to water well-drained borders during such weather as we had in July and August.

FATTY-MARZON N. W. A. (*P. W. A.*).—The Golden Drop, Imperatrice, and, indeed, all the old plums, will do on your north wall, in addition to the Morella cherry, but not better than on standards. The principal convenience of a north wall for fruit-trees is the ease with which fruit upon it may be covered to keep late, such as currants, gooseberries, Morella cherries, &c. Your suggestions are under consideration. We have already done more for popular gardening than has ever been thought of before, but we can hardly be expected to write books on the different subjects; they are already as plentiful as blackberries, and many of them are worthless. The more you read of such books, the more certainly we shall have you as "a constant subscriber."

ROSE CUTTINGS (*Flora, Somersetshire*).—Cuttings of summer roses will hardly strike now, but many of them would if put in last August. Good cuttings will "heel" to them of all other roses may be put in any time in October and November, but the sooner the better. We have just finished planting many hundreds of them in beds of light earth, in an open situation; and we have planted them in rows across the bed, fourteen inches apart, and four inches from one another, and gave them, when first planted, a good watering with a rose pot to fill up the soil about them. Your other question about your beautiful *geraniums* will be included in a general review of the whole subject next week by Mr. Beaton, and that will be in full time.

DAHLIA CUTTINGS (*J. B. P.*).—It is now too late to propagate by cuttings, but they may be grafted on the tubers now and in October. They will not be better plants than those obtained by dividing the roots next spring.

RASPBERRY ESPALIERES (*J. B. C.*).—The posts for these should be about six feet apart, and the plants three feet from each other. The directions at p. 65 of vol. I. apply to established plants. Canes planted this autumn will yield you a good crop next year if moved carefully and well cultivated.

HERACLEUM GIGANTEUM (*G. A.*, & *J. Robinson*).—This plant grows eight feet high, and its large bunches of white flowers will be out in June and July next if sown now. It is quite hardy, being a native of Siberia.

WINTERING GERANIUMS (*H. R., Edinburgh*).—Every old fuchsia and geranium, such as you name, may be kept over the winter, without light or pots, the same way as dahlias, that is, secured from damp and frost. Those out in pots are best kept in the pots, and all of them should be pruned before storing, cutting out the soft parts. We would not recommend you to adopt the plan of putting in with gas, but if you can do it at a small outlay it is worth trying. We shall soon enlarge on these subjects in another page. We publish the following extract from your letter for the instruction of our other readers.

It tells as plainly as a fact can do, how old geraniums and fuchsias can be wintered. "Last winter, being in bad health, I had to leave home with my family, so I shut up my house, having taken all my fuchsias, geraniums, &c., in pots, into the kitchen. There they were left without water or light for nearly four months. When I returned in the beginning of April, I thought they were all dead, but, in the middle of May, I had them put out into the open border. All of them have lived, and are now (September) in full foliage, and laden with clusters of flowers."

SYSTEMS OF TRAINING (*G. G. G.*).—We have always been in the habit of considering Seymour's system as too tedious, and too apt to be mischievous, on account of the great number of ties on this or that system we must rely, but on a judicious course of management, more especially summer stopping. By the latter a tree may be kept under perfect control, and by it alone. Carry up your bearings on the radiating principle by all means. If your studs are all occupied, tie the young shoots down to the branch, next below them, until the time of winter pruning.

LILIUM LANCIFOLIUM RUBRUM (*F. Giles*).—See what is said in our first volume, p. 248. You need not give any water to old *fuchsias*, after they have been moved from your border into their winter quarters. The plant instead of *Datura*, is now called *Brugmansia arborea*. It grows large, and therefore requires much root room. It is really a stove plant, but large specimens turned out into the conservatory borders do exceedingly well; and even if turned out into the open air about the beginning of June they flower well. Any rich light soil will strike root, and the plants will be ready to get bottom heat. Your other plant, of which you sent a leaf, is either an *Ipomoea* or a *Calyptegia*. Do not cut it down, but encourage its flowering, as it is growing well.

BALLS OF JELLY (*R. Hick*).—These, which you found when mowing, are the seeds of the *Urtica*.

SOWING GLADIOLI (*G. G.*).—The soil for this purpose is a mixture of equal parts sandy peat, light loam, and leaf-mould. Bury the seed half an inch deep. *Istius* must be kept in a cold pit or frame, with plenty of air through the winter. All that they require is to have the frost kept out. See full directions at p. 119 of vol. I.

HEATHS IN ROOM (*A. T. Blythe*).—See, for general culture, p. 26 of present volume; and, in rooms, p. 168. *Seedling pelargoniums* must be allowed to go to rest in the winter, but the soil must not be allowed to become so dry as that of old plants. Do not allow them to bloom this year. To destroy the *aphis* on your roses, &c., there is no plan known but erasing them with the fingers, syringing them with tobacco water, and fumigating them with tobacco smoke. You will see a very able communication in our paper to-day on the culture of the *strawberry*. Answers to your other queries next week.

WEEDS ON LAWN (*Tyro*).—The only mode of destroying the plants on your lawn is by having them cut out with a knife, and a large spoonful of salt put upon the stump. It is a tedious process, but a woman will do it for a very small sum.

COCCURUS IN MOBS (*Stella*).—Deep china bowls will do for this purpose, only transfer the mosses to the bowl as it gets dry. By a *straw pot* is meant a pot six inches in diameter across the top.

VINES IN POTS (*J. F. M., Otley*).—You will see Mr. Fish writes upon this subject last week. Joslin's St. Albans is preferable to a White Tokay vine for cultivation in a small house with little artificial heat.

FUCHSIA SEEDLINGS (*R. D.*).—Treat them like old plants except taking care that the earth is kept slightly moist during the winter. They had better be kept in a cool frame, and here, if protected from frosts by covering, they will require no other care. Leave your rose trees where they are if you have put them in where you wish them to remain.

LILIUM LANCIFOLIUM (*Dianthus*).—You will find full directions for the culture of this flower at p. 248 of our first volume, and p. 175 of the present. *L. L. album* is white, *L. L. punctatum* is white and spotted, *L. L. roseum* is pink, *cruciatum* is crimson, and *redrum* is a red. They grow from three to four feet high. The species is a native of Japan. The size of the instrument for ascertaining the pitch of a greenhouse roof given at p. 304 is immaterial; if each side is as long it is as convenient size.

SALT OR GARZEL WALKS (*Rev. H. House*).—See what is said at p. 72. No water is necessary. It only destroys weeds for a time, and will serve your edgings the same if you have any.

HUSH'S HIVE (*J. Merrifield*).—The Hush hive is 12 inches wide at the top, and 18 at the bottom, and is twelve inches deep. The zinc covers mentioned in our last number refer to Neighbour's improved cottage hive; it has a top of wood the size of the hive, in which are five holes for as many glasses; the holes are covered with circular pieces of

zine, secured by one nail only, and are turned aside when the glasses are put on. Payne's improved cottage live is of straw entirely, for which see THE COTTAGE GARDENER, vol. i. p. 239. For the former apply at Mr. G. Neighbour's warehouse, 127, High Holborn, London. Mr. Payne's costs eighteen-pence, and the other three guineas.

WINTERING BEGONIA FUCHSIODES (cf. *Subsericea*).—Keep it almost dry the end of October to March, and in a temperature rather warmer than a greenhouse, say from 45° to 50°; when it begins to grow in the spring cut back the small side shoots to a couple of knuds; give it stove heat if possible to the end of May, and then summer it in the greenhouse. It will bloom from the middle or end of July. Every triple mode of it, and of all the branching begonias, root as freely as willows.

FUCHSIAS GROWN TOO LARGE (H. N. Kingston, Ireland).—Fuchsias must not be disrooted when growing, but, if necessary, may be closely root-pruned in the spring, like pelargoniums. All the young wood made this season may be cut off to a few eyes, and also some of the older branches if they are too close together, as soon as the growing season is over. The *midew* on your crops indicates it damp or undrained soil; sulphur, if applied in time, is the best preventive, and liquid manure helps the plants to outgrow it.

ACQUATIC PLANTS (L. D. C. Parnoung).—Your complaint of the destruction of your water-plants "by some water insect" is new to us, and we think some other destroyer has done the mischief. Lime is disagreeable to all water insects, and will kill fish if in strong doses; a little fresh lime dusted on the surface, over the plants, is the most likely way to get rid of the annoyance, and the plants are not in the least injured by it. Pray try this experiment, and he kind enough to communicate the result.

PLANTS FOR BORDER UNDER S. E. WALL (Ibid).—We would recommend a row of *Escholtzias* to be sown along the dry border early in April. It is the only thing that we know that is likely to succeed with you; we have seen it flourish on rocks, in pure sand and in loose gravel, fall in the sun.

PLANTING HEDGES (Ibid).—We prefer the old mode of cutting down the "sets" when the hedge is planted, but opinions differ on the point. Why not try this? We have often done so, but we always planted in October, which is by far the best season.

FRUIT-TREES NEAR A HEDGE (E. S., Birmingham).—Your trees cannot answer so near the hedge. Take them up by all means in the end of October, or any time between that and the middle of February, but the earlier the better, and replant them. Perhaps you had better remove them to the other side of the walk, and three feet from it. We do not like these hedge borders; we think it best economy to make the walk close to the hedge where ground is precious, unless (it may be) one southern slope for very early things. See our Number for November for more on this subject, which we discussed this subject. As your subsoil is retentive, mind your drainage.

LIQUID MANURE FOR FRUIT-TREES (Busby).—You may apply the liquid with the greatest amount of benefit when the fruit is swelling, say the early part of June. If very strong, dilute it with two parts water at least. Be sure to cover the soil with litter or mulch previously. Any surplus stock of such liquor may be poured over the roots of hard-bearing trees, any time from November till February, in its crude state, or nearly so. The best way at that period is to loze holes with a poker or crowbar to receive it.

TRAILER FOR A SHADED WINDOW (Ibid).—It is difficult to suggest a pretty trailer for a shaded window. We would try *Tropaeolum peregrinum*; this we know will do in shade. The *Linaria cymbalaria* we have seen growing beautifully in such a situation—keeping a water-pot beneath it. *Penninus* would succeed, if in flower when placed there; also *Funbergia*, if the roots are a fire. The *Lysimachia annularis* is a pretty trailer and endures shade. *Saxifraga sarmentosa* looks very pretty suspended in a window.

CALENDAR FOR OCTOBER.

GREENHOUSE.

AIR, give freely in fine days, and sparingly at night, unless the thermometer indicates 40°. **AZALEAS** and **CAMELLIAS**, remove into the house. Do not allow any, and especially the former, to get yellow in the foliage. **CYTISUS** and **GENISTA** should be well watered with the syringe to clear away all traces of red spider before being introduced. **CLEAN** and fresh surface all plants with suitable composts before housing them. **CLIMBERS** on rafters, &c., shorten and remove, that the plants below may have as much light as possible. **CINERARIAS**, pot suckers and seedlings. **CAULOCARIAS**, propagate by cuttings, and pot and prick off seedlings; they strike easily in the beginning of the month. The **TENDEREST PLANTS** should be housed by the beginning of the month; the **HARDY**, such as myrtles, chrysanthemums, &c., should have a shelter ready when necessary before the end of the month. Those taken from the open borders and potted will thrive all the better if, after the roots had previously been cut round, the plants after being potted should have the pots plunged in a pit or frame in a little bottom heat. **WATER**, give sparingly at bottom, unless in the case of those forming flower-buds or coming into bloom, such as *chrysanthemums*, early *cancellas*, &c., rather prefer syringing over head in a fine day, until the end of the month, excluding from this operation plants in bloom. R. FISH.

FLOWER GARDEN.

ANEMONES, plant. **ANNUALS**, done flowering, pull up, b. **ARTICULAS**, move to sunny shelter; protect from rain and snow; remove dead leaves; slip. **BULBOUS** roots, plant; those in flower protect; place in water glasses. **CARNATION** layers, plant in pots, c. **CHIMBERS**, plant. **COMPOST**, prepare. **CUTTINGS**, plant. **DAN-**

LIAS, protect in flower; begin to take up roots, to dry and store as the leaves decay, c. **ENGINGS**, trim. **EVERGREENS**, plant, trim. **FIBROUS**-rooted plants, transplant where required; divide roots. **GRASS**, mow and roll weekly. **GRAVEL**, weed and roll. **GREENHOUSE** plants, remove from borders to the house. **HEDGES**, trim; plant; plash. **HOE** and **RAKE**, as required. **LAYERS**, make; they will have to remain twelve months. **LAYERS**, gather as they fall, and store for compost. **MICROMETES**, shelter. **PINES**, &c., finish, planting to remain. **PLANTING**, generally, may be done. **POTTING**, perform as required; dress old potted plants. **PRIMULAS**, all this genus (polyanthus, &c.) may be propagated by slips. **PRUNUS**, generally, but especially cut the green shoots off all the old sylvias, including *coronatus*, and such like plants, in the spring, &c., finish, and let them stand in the borders to the end of the month, unless hard frost comes. **RANUNCULUSES**, plant. The end of this month and the beginning of the next is the best time to transplant **ROSES**, particularly climbers. **SHELTER** half hardy plants and shrubs; the first frost is the most injurious to them. **SPRINKLING**, place in sheltered places. **SEEDS**, finish gathering. **SUCKERS**, remove and plant out. **TRENCH** vacant ground. **TUBEROUS**-rooted plants insert, especially *poemias*. **TUFT** may be laid. D. BEATON.

ORCHARD.

STORING FRUIT, continue to gather in due succession apples, pears, &c. **PEACHES** and **NECTARINES**, be watched over these remaining. **PLUMS**, protect the late kinds, as *Imperatrice* and *Coe's Late Red*, from wasps. **RASPBERRIES** (Autumn), gather when dry. **STRAWBERRIES** (Alpine), gather when dry. **QUINCES**, gather. **MEDLARS**, gather, c. **GRAPES**, ripe, gather and hang in dry room; bag when necessary, b. **PIES**, gather daily when ripening. **WALNUTS**, gather, m. and c. **STONES** of fruits preserve for sowing. **BERRERIES**, gather, m. **PLANTING**, commence, c. Preparation of ground for planting early out. **THOROUGH DRAINAGE** attend to, c. **HEDGES**, finish trimming, b. **Thorough cleaning** of long grass, weeds, &c., carry out, b. **CHAB** or burn all hedge dabbings and weeds, b. **NEWLY-PLANTED TREES** water if dry, and shade if the leaves are on. **STRAWBERRIES**, rough dress and plant, b. **TERMINING** perform, b. R. EBBINGTON.

PLANT STOVE AND FORCING DEPARTMENT.

AIR, admit freely every fine day, and a little during warm nights. **BARK-BEDS**, turn and renew, but whether be the new or the old you put on the top, do not mix the two together, or the heat will be too violent. **BULBS**, pot for first and succession blooming. **CUCUMBERS**, pot and grow for winter hearing. **CLEAN LEAVES** from insects, **GLASS** from dirt, and **PURCHASE** the roots. **FIERS**, light during the evening, but sparingly; rather do so in general during the morning, which will enable you to give more air to pines and late vines in fruit, and thus finish the maturing of the wood. **FLOWERING STRAWS** introduced at the end of the month for winter blooming, after having been introduced at least. **PINE** intended for forcing early, should be encouraged to finish their growth by giving plenty of air. Successions should be encouraged to grow, as long as there is strength of sun to elaborate their juices. **VINES** in late houses, see that the wood is maturing, and disbud where the buds will not be wanted. **SHIPPING** must still be done where necessary, but sparingly—enough to keep generally in this department than any other. **STRAWBERRIES**, the most forward in pots, defend from heavy rains (if by no other means), turning the pots on their broadsides. **WATER** growing plants as they require it, and especially those showing flower, such as *geranium*, &c.; but water sparingly those stopped growing. R. FISHER.

KITCHEN GARDEN.

ANGELICA, sow. **ASPARAGUS-BEDS**, dress, c.; for forcing, plant. **BALM**, plant. **BEANS**, plant, c. **BEEF** (Red), take up for storing, c.; leave or plant out for seed. **BORCULO**, plant, b.; earth up, c. **BURNET**, plant. **CABBAGES**, prick out, &c.; plant for seed. **CANDORS**, earth up. **CARROTS**, take up to store, c.; leave for seed; for seed, this young crops. **CARTEFLOWS**, prick out in borders to stand the winter, and, by way of precaution, in frames, &c. **CELERY**, plant; earth up. **CHIVES**, plant. **COLEWORTS**, plant. **CRESS** (water), plant. **CUCUMBERS**, plant, b. **DILL**, sow. **DUNG**, prepare for use. **EASTING**, dig up. **HERBARIUM**, sow, b. **HERBARIUM**, sow. **FENNEL**, plant. **GARLIC**, plant, c. **HERBARIUM**, sow. **HORSE-RADISH**, plant. **HYSSOP**, plant. **JERUSALEM ARTICHOKE**, stir, c. **LEAVES**, fallen, remove continually. **LEeks**, plant, b.; hoe, &c., advancing crops. **LETTCES**, plant, b.; prick out, c. **MINT**, plant. **MUSHRROOM-BEDS**, make attend to those in production. **NASTURTIUM BERRIES**, gather as they ripen. **ONIONS**, attend to those in store; this; plant for seed; (Potato), plant. **PARSLEY**, cut down, b.; (Hamburg), is fit for use. **PARSNIPS**, take up for storing, c.; leave or plant out for seed. **PEAS**, sow, c. **PENNY-ROYAL**, plant. **POTATOES**, dig up. **RANUNCULUS**, sow, b. **RHUBARB**, sow. **ROSEMARY**, plant. **RICE**, plant. **SAGE**, plant. **SALSAFY** is in perfection; take up for storing. **SAVOY**, plant. **SAVOY**, plant for seed. **SCORONERA** is in perfection; take up for storing. **SEEDS**, gather as they ripen. **SHALLOTS**, plant, c. **SNAIL SALAD**, plant. **SPINACH**, sow, b. **SPINACH**, sow, b. **SPINACH**, sow, b. **TARAGON**, plant. **THINNING**, attend to. **THYME**, plant. **TOMATOES**, gather. **TUNIS**, plant for seed; hoe young crops. **VACANT GROUND**, trench, drain, &c.

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